

DBG DPBU II Service

Model ID:RA19WAANU



Service Manual

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Safety Notice

Any person attempting to service this chassis must familiarize with the chassis and be aware of the necessary safety precautions to be used when serving electronic equipment containing high voltage.

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Product Announcement:

This product is certificated to meet RoHS Directive and Lead-Free produced definition. Using approved critical components only is recommended when the situation to replace defective parts. Vender assumes no liability express or implied, arising out of any unauthorized modification of design or replacing non-RoHS parts. Service providers assume all liability.

- ! Using Lead-Free solder to well mounted the parts.
- ! The fusion point of Lead-Free solder requested in the degree of 220°C.

Qualified Repairability:

Proper service and repair is important to the safe, reliable operation of all series products. The service providers recommended by vender should being aware of notices listed in this service manual in order to minimize the risk of personal injury when perform service procedures. Furthermore, the possible existed improper repairing method may damage equipment or products. It is recommended that service engineers should have repairing knowledge, experience, as well as appropriate product training per new model before performing the service procedures.

NOTICE:

- ! To avoid electrical shocks, the products should be connect to an authorized power cord, and turn off the master power switch each time before removing the AC power cord.
- ! To prevent the product away from water or expose in extremely high humidity environment.
- ! To ensure the continued reliability of this product, use only original manufacturer's specified parts.
- ! To ensure following safety repairing behavior, put the replaced part on the components side of PWBA, not solder side.
- ! To ensure using a proper screwdriver, follow the torque and force listed in assembly and disassembly procedures to screw and unscrew screws.

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1.1 SCOPE

This document defines the design and performance requirements for a 19W inch diagonal , flat panel monitor .The display element shall be a WXGA(1366X768) resolution TFT-LCD (Thin Film Transistor Liquid Crystal Display).16.7M color images are displayed on the panel.Video input signals are analog RGB (0.7Vp-p). When the system is powered-on , previously stored screen parameters for a pre-defined mode will be recalled if the operating mode is one of stored in memory(21 factory , 9 users timing).This monitor operates normal by non-interlaced mode. DDC (Display Data Channel) function is DDC2Bi compliance Power saving function complies with the DPMS (Display Power Management Signaling) standard.

1.2 GENERAL REQUIREMENTS

1.2.1 Test Condition

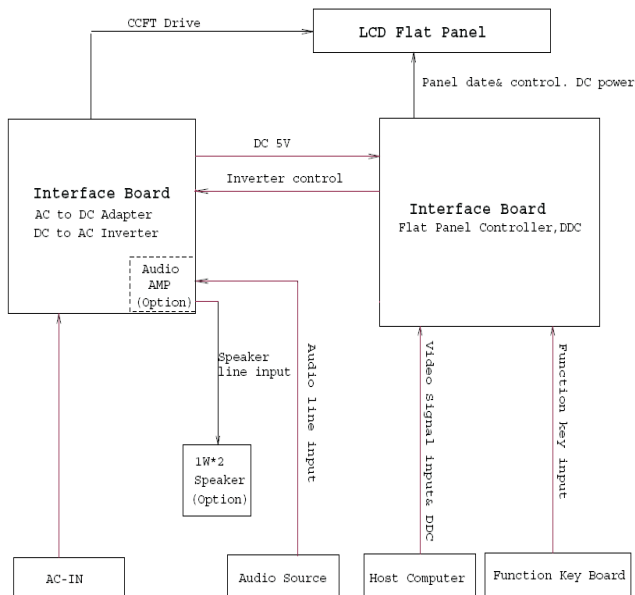
Brightness level & contrast level max. Full white pattern test mode following spec. Warm up more than 1 hr, ambient light < 10 Lux , Luminance meter CA110 or BM7 or same equipment .

1.2.2 Test Equipment

The reference signal source is a calibrated Chroma 2135 video generator or higher.The use of other signal generators during qualification and production is acceptable provided the product complies with this specification.

1.3 ELECTRICAL

This section describes the electrical requirement of the monitor block diagram in Figure 1 illustrates the various electrical sub-system.



The LCD monitor consists of an interface board , a power board , a function key board and two speaker(1W)(with audio) The interface board will house the flat panel control logic , brightness control logic, audio function control (option), key function control, DDC and DC to DC conversion to supply the appropriate power to the whole board and LCD flat panel , and transmitting LVDS signals into LCD flat panel module to drive the LCD display circuit .The power board will support main power DC5V to interface board and drive the two CCFLs (Cold Cathode Fluorescent Tube).The interface board provides the power ON / OFF control over the whole monitor and control for DPMS LED indicator to function key board.

Monitor Specifications

ITEM	SPEC	
Signal Input (Analog)	Frequency	Analog H:31Hz~83Hz V:50Hz~75Hz
	Pixel Clock	135MHz(Max)
	Video Input	Analog :07Vp-p
	Display Pixels	640x480 (VGA)~1366x768(WXGA)
	Sync Signal	Separate SYNC for TTL (N or P)
Signal Input (Digital)	Frequency	Digital H:31Hz~83Hz V:50Hz~75Hz
	Pixel Clock	135MHz(Max)
	Video Input	Analog :07Vp-p Input Impedance 75Ω
	Display Pixels	640x480 (VGA)~1366x768(WXGA)
	Connector	AC Input
Power Consumption	Input Connector	D-SUB 15 pin & DVI -D
	Audio Input(Optional)	Audio Input 3.6 Φ
User's Control	Power Consumption	Active 30W(with Audio), active 25W ,Power Saving <2W
	Front	Empowering ,Auto Adjust ,Adjust (-),Adjust (+),Menu ,Power
	OSD	Contrast,Brightness ,Position ,Clock ,Phase , Analog/Digital ,RESET , Color ,Language select , Audio (Option),ect.
Pre-Defined Timing	Factory	21
	User	9
Plug and Play		VESA DDC 2Bi
Power Saving		VESA DPMS
Input Signal Center Tolerance		±H 1kHz, ±V 1Hz

1.3.1 Interface Connectors

1.3.1.1 Power Connector and Cables

The AC input shall have an IEC/CEE-22 type male power receptacle for connection to mains power. The power cord shall be with length of 1.8+/-0.005 meters.

1.3.1.2 Video Signal Connectors and Cable

The signal cable shall be 1.8 +/-0.005 meters long. At the end of the cable shall be a molded-over, shielded, triple row, 15 position, D-subminiature connector. The CPU connection shall have captive screw locks, which will be adequate for hand tightening. The monitor connection may use small screws.

Connector Pin Assignment
D-SUB

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Pin	Signal	Pin	Signal	Pin	Signal
1	Red-Video	6	Red-GND	11	NC
2	Green-Video	7	Green-GND	12	DDC-SDA
3	Blue-Video	8	Blue-GND	13	H-SYNC
4	NC	9	+5V	14	V-SYNC
5	Connection Detect	10	GND	15	DDC-SCL

Connector Pin Description

D-SUB Description

Pin	Name	Description
1	Red-Video	Red video signal input
2	Green-Video	Green video signal input
3	Blue-Video	Blue video signal input
4	NC	Not connect
5	Connection Detect	Detect VGA Cable have Connected or not
6	Red-GND	Analog signal ground for the Red video
7	Green-GND	Analog signal ground for the Green video
8	Blue-GND	Analog signal ground for the Blue video
9	+5V	+5V input from host system for the VESA DDC 2Bi function
10	Sync-GND	Signal ground
11	NC	Not connect
12	NCDDC-SDA	SDA signal input for the VESA DDC 2Bi function
13	H-SYNC	Horizontal signal input from the host system
14	V-SYNC	Vertical signal input from the host system
15	DDC-SCL	SCL signal input for the VESA DDC 2Bi function

DVI-I/DVI-D(If using DVI-D cable,C1,C2,C3,C4,C5 is NC)

Pin	Signal	Pin	Signal	Pin	Signal
1	RX2-	13	NC	C1	Analog Red(NC)
2	RX2+	14	5V	C2	Analog Green (NC)
3	GND	15	DVI Connect	C3	Analog Blue (NC)
4	NC	16	HP	C4	Analog H-Sync (NC)
5	NC	17	RX0-	C5	GND
6	SCL	18	RX0+		
7	SCA	19	GND		
8	Analog V-Sync(NC)	20	NC		
9	RX1-	21	NC		
10	RX1+	22	GND		
11	GND	23	RXC+		
12	NC	24	RXC-		

DVI-I/DVI-D Connector Pin Description					
Pin	Name	Description	Pin	Name	Description
1	RX2-	TMDS link #0 channel #2 differential pair	16	HP	Hot plugging
2	RX2+	TMDS link #0 channel #3 differential pair	17	RX0-	TMDS link #0 change #1 differential pair
3	GND	GND for no link share	18	RX0+	TMDS link #0 change #1 differential pair
4	NC	NC	19	GND	GND for no link share
5	NC	NC	20	NC	NC
6	SCL	Clock line for DDC interface	21	NC	NC
7	SDA	Data line for DDC interface	22	GND	Clock shield
8	Analog V-Sync	V-sync for analog interface	23	RXC+	TMDS clock differential pair
9	RX1-	TMDS link #0 change #1 differential pair	24	RXC-	TMDS clock differential pair
10	RX1+	TMDS link #0 change #1 differential pair	C1	Analog Red	Analog Red signal
11	GND	GND for no link share	C2	Analog Green	Analog Green signal
12	NC	NC	C3	Analog Blue	Analog Blue signal
13	NC	NC	C4	Analog H-Sync	H-Sync for analog interface
14	5V	+5V input from host system for DDC 2B function	C5	Analog GND	Analog GND
15	DVI Connect	Using as Detect Cable			

1.3.1.3 Audio Jack (option)

This jack shall connect the audio input from host computer.

1.3.2 Video Input Signals

Video Input Signal Ranges

No.	Symbol	Item	Min	Normal	Max	Unit	Remark
1	Fh	Horizontal Frequency	31		83	kHz	Minimum range
2	Fv	Vertical Frequency	56		75	Hz	Minimum range
3	Vih	Hi Level Input	2.0		5.0	V	Note 1)
4	Vil	Low Level Input	0		0.8	V	Note 1)
5	Video	RGB Analog Video Level	0.0	0.7	0.1	V	75Ω to Ground

Note 1) Schmitt-Triggers Input, Supported 3.3V device H(&V) sync output from PC

Video Input Signal

No.	Symbol	Item	Min	Normal	Max	Unit	Remark
1	Fh	Scanning Horizontal Frequency	30		94	kHz	Minimum range
2	Fv	Scanning Vertical Frequency	55		76	Hz	Minimum range
3	Vih	Hi Level Input	2		5	V	Note 1)
4	Vil	Low Level Input	0		0.8	V	Note 1)
5	Video	RGB Analog Video Level	0.0	0.7	1.0	V	75Ω to Ground

Note 1) Schmitt-Triggers Input, Supported 3.3V device H(&V) sync output from PC.

1.3.2.1 Video Signal Amplitudes

The three video inputs consist of Red, Green, and Blue signals, each with its own coaxial cable terminated at the monitor. These video signals are analog levels, where 0 V corresponds to black, and 700 mV is the maximum signal amplitude for the respective color, when each signal is terminated by a nominal 75.0 ohms. For a given monitor luminance levels are measured using this defined video amplitude driving a monitor meeting the termination requirements. The signal amplitude is not to be readjusted to compensate for variations in termination impedance.

1.3.2.2 Video Signal Termination Impedance

This analog video signal termination shall be 75Ω+/-1% which shall be resistive with a negligible reactive component.

1.3.2.3 Synchronization (Sync) Signals

The Horizontal Sync (HS) TTL signal is used to initiate the display of a horizontal line. HS may be either active high or active low, depending upon the timing. The Vertical Sync (VS) TTL signal is used to initiate the display of a new frame. VS may be either active high or active low, depending on the timing.

1.3.2.4 Sync Signal Levels

The monitor must accept sync signals from both 3.3 and 5 volt TTL logic families. The inputs shall sense a logic 0 when the input is 0.8 volt or less and shall sense a logic 1 when the input is 2.0 volts or greater. In addition to these level requirements, there shall also be a minimum of 0.3 volt hysteresis provided for noise immunity (typically by using a Schmitt Trigger input). That is, the input level at which the monitor actually detects a logic 0 shall be at least 0.3 volt lower than the level at which it actually detects a logic 1. If the monitor sync processing circuits are designed around the 3.3 volt logic family, then the sync inputs must be 5 volt tolerant.

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1.3.2.5 Sync Signal Loading

TTL input loading shall be equivalent to one TTL input load. When logic 0 is asserted by a sync input, the maximum current source from any single monitor sync input to the driver is 1.6 mA. When logic 1 is asserted, the maximum current source from the driver to any single monitor sync input is 400 uA.

1.3.2.6 Abnormal Signal Immunity

The monitor shall not be damaged by improper sync timing, pulse duration, or absence of sync, or abnormal input signal amplitude (video and/or sync too large or too small), or any other anomalous behavior of a graphics card video generator when changing modes, or when any combination of input signals is removed or replaced. Additionally, under these conditions, the monitor shall not cause damage to the driving source.

1.3.3 User Controls and Indicators

1.3.3.1 Power On / Off Switch

The monitor shall have a power control switch visible and accessible on the front of the monitor. The switch shall be marked with icons per IEC 417, # 5007 and # 5009. The switch shall interrupt the DC supply to the monitor.

1.3.3.2 Power Indicator LED

The monitor shall make use of an LED type indicator located on the front of the monitor. The LED color shall indicate the power states as given in Table 1.

Table 1

Function	LED Color
Full Power	Blue color
Sleep	Orange color

1.3.3.3 On-Screen Display

The Lite-ON On Screen Display system shall be used, controlled by a Menu button. If the buttons remain untouched for OSD turn off time while displaying a menu, the firmware shall save the current adjustments and exit. Also, if the video controller changes video mode while the OSD is active, the current settings shall be saved immediately, the OSD turn off, and new video mode is displayed.

Description

Key	When no OSD display	OSD Displayed
MENU	Menu Display	1. To display the OSD menu on the screen. 2. To select the OSD sub-Menu
>	Speaker Volume/Minus (with Audio)	1. Forward selection of the OSD menu. 2. Increase the value after sub-menu selected.
<	Speaker Volume/Plus (with Audio)	1. Back-forward selection of the OSD menu. 2. Decrease the value after sub-menu selected.
Auto	Auto Adjust Function	Menu or sub-menu EXIT/Auto Adjust function.
E	Empowering	Menu or sub-menu EXIT/Scenario mode

1.3.3.4 OSD adjustment

ITEM	CONTENT
AUDIO VOLUME	To increase or decrease the sound level
BRIGHTNESS	Back light Luminance of the LCD panel is adjusted.
CONTRAST	A gain of R, G and B signal is adjusted.
AUTO CONTRAST	A gain of R, G and B signal auto adjust.
CLOCK	The ratio of dividing frequency of the dot clock is adjusted.
PHASE	The phase of the dot clock is adjusted.
H-POSITION	The indication screen is horizontally moved right and left (1 Pixels pitch).
V-POSITION	The indication screen is vertically moved up and down (1 Pixels pitch).
AUTO ADJUST	Clock system auto adjustment, about under 8 sec.
COLOR BALANCE	Select three kinds of modes. (USER /6500 / 9300).
OSD POSITION	The OSD indication position can be adjusted.
OSD LANGUAGE	Select the language used for the OSD menu among English, French, Italian, Deutsch and Spanish.
RECALL DEFAULTS	All data copy from factory shipment data.
OSD DURATION	Adjust OSD menu off time range from 10~120 second.
POWER-SAVE	Back light of the LCD panel is cut when the signal is not input (AC line power consumption 2W or less).
INFORMATION	The frequency of the horizontal / vertical synchronizing signal under the input is indicated.

※ NOTE : OSD MENU SEE APPENDIX A

1.3.4 Monitor Modes and Timing Capability

1.3.4.1 Format and Timing

The monitor shall synchronize with any vertical frequency from 56 to 75 Hz, and with any horizontal frequency from 31 to 83KHz. If the input frequency is out of the above – specified range, the monitor shall display a warning screen indicating that the input frequency is out of range. Under no circumstances shall any combination of input signals cause any damage to the monitor.

1.3.4.2 Factory Assigned Display Modes

There are 21 factory pre-set frequency video modes. These modes have a factory pre-set for all characteristics affecting front-of-screen performance. When the system is powered-on, previously stored screen parameters for a pre-defined mode will be recalled if the operating mode is one of those stored in memory. If the operating mode is not one of those stored in memory, the monitor CPU will select the PRESET timing for a mode that is the next lowest in horizontal scanning frequency to the mode being currently used. The screen parameters may be adjusted by the use of the front bezel controls and then may be saved as a user defined mode. The monitor shall include all the preset video timings shown in the following page. (Please see Note.(3))

1.3.4.3 Mode Recognition Pull-in

The monitor shall recognize preset modes within a range of +/-1KHz whichever is less for horizontal ; and within +/-1Hz for vertical.

1.3.4.4 User Display Modes

In addition to the factory pre-set video modes, provisions shall be made to store up to 9 user modes. If the current mode is a user mode, the monitor shall select its previously stored settings. If the user alters a setting, the new setting will be stored in the same user mode. The user modes are not affected by the pre-set command. If the input signal requires a new user mode, storage of the new format is automatically performed during user adjustment of the display (if required).

Please see Note.(4)

Preset timing Chart

Preset Timing Chart								
Item	No	Resolution	H-Sync (KHz)	V-Sync (KHz)	Band Width (MHz)	Polarit		Source
						H	V	
1	T103	640x480@60Hz	31.469	59.941	25.175	-	-	VESA
2	T173	640x480@72Hz	37.861	72.809	31.500	-	-	VESA
3	T109	640x480@75Hz	37.500	75.000	31.500	-	-	VESA
4	T182	640x480@66.66Hz	35	66.66	30.24	-	-	MAC
5	T102	720x400@70Hz	31.469	70.087	28.322	-	+	VGA
6	T104	800x600@56Hz	35.156	56.250	36.000	+	+	VESA
7	T116	800x600@60Hz	37.879	60.317	40.000	+	+	VESA
8	T117	800x600@72Hz	48.077	72.188	50.000	+	+	VESA
9	T110	800x600@75Hz	46.875	75.000	49.500	+	+	VESA
10	T108	832x624@74.55Hz	49.722	74.55	57.28	-	-	VESA
11	T118	1024x768@60Hz	48.363	60.004	65.000	-	-	VESA
12	T157	1024x768@70Hz	56.476	70.069	75.000	-	-	VESA
13	T141	1024x768@75Hz	60.023	75.029	78.750	+	+	VESA
14	T203	1152x870@75Hz	68.700	75.000	84.520	-	-	
15	T126	1152x864@75Hz	67.5	75	108	+	+	
16	T161	1280x960@60Hz	60	60	108	+	+	VESA
17	T179	1280x1024@60Hz	63.981	60.020	108.000	+	+	VESA
18	T131	1280x1024@75Hz	79.976	75.025	135.000	+	+	VESA
19	T339	1280x720@60Hz	44.955	59.940	74.176	+	+	
20	T213	1280x800@60Hz	49.702	59.810	83.500	+	+	
21	T278	1366x768@60Hz	47.712	59.790	85.500	-	-	

1.3.5.2 Video Stretching

The monitor shall contain provisions to “stretch” the video signal, so that an input signal from the computer in any resolution smaller than 1366 x 768 is automatically expanded to fill the entire screen.

1.3.5.3 Panel Timing and Interface

The controller supplied with the monitor shall control all panel timing. This controller shall adequately insulate the monitor from the computer, so that no possible combination of input signals from the computer shall cause damage to the flat panel or any other component of the monitor. The LCD panel interface shall support the TFT standard.

1.3.6 DC - AC Inverter Requirements

The DC-AC inverter is on the power board. The frequencies used by the DC-AC inverter used to power the backlight shall be chosen so as to prevent any noticeable effects on the flat panel (such as a rolling effect).

1.3.7 Power Supply Requirements

The AC to DC converter power supply for the monitor shall be an external AC to DC converter “brick” This brick shall have an IEC receptacle for main power input and a pin - in ---socket for DC power out. The brick shall provide sufficient power for both the monitor and the backlight assembly, and shall meet requirements specified in Table 2.

Table 2. AC TO DC Converter Requirements

AC to DC Converter Requirements	
Input Voltage Range	The operating range shall be from 90 to 132 and 195 to 265 AVC sinusoidal for all models specified.
Input Frequency Range	Input power frequency range sha; be from 45 to 63 Hz over the specified input voltage range.
Power Consumption	Power consumption for the monitor shall be less than 2W over the specified voltage and frequency ranges. In suspend or sleep mode the power consumption will be less than 2W.
Line Fuse	The AC input shall be fused and become electrically open as a result on an unsafe current level. The fuse many not be user replable.
Initial Cold Start	The power supply shall start and function properly when under full load, with worst case conditions of input voltage, input frequent, operating temperature, and cold backlight lamps.
Inrush Current	The inrush current must be limited to 30A when operated at 120VAC, and 50A when operated at 220VAC. Inrush current is measured at an ambient temperature of 25 °C, with the unit temperature stabilized in the poweroff.
Hot Start Cycle	The power supply shall be damaged when switched ON for one second and OFF for one second for seven consecutive after operating for one hour at full load, 25 °C, and nominal input line voltage.
Under Voltage	The power supply shall contain protectioicircuitry such that the application of an input voltage below the minimum specified in this table shall not cause damage to the power supply unit nor cause failure of the input.
Line Transient	The power supply shallperate within IEC 8044 (± 1KV) and IEC 801-5 (± 2KV) for the domestic U.S. version. The UPS power supply shall operate and comply with CE mark.

1.3.5 Controller Requirements

1.3.5.1 General Requirements

The monitor shall include a controller capable of converting the analog RGB signal from a standard SXGA resolution video controller in the CPU to a signal which can be displayed on the panel. The controller will include a PLL, A/D converters, LVDS transmitter and other circuitry necessary to perform its function. The PLL shall be stable enough to ensure that a static image from the CPU is placed in the same physical location on the flat panel in each frame.

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1.3.8 Display Communications Channel

The monitor assembly shall provide a display communications channel that conforms to VESA DDC2Bi hardware requirements. This configuration shall contain the 128-byte EDID file as specified by VESA EDID standard. The monitor should not write to the EDID file for the first two minutes of operation following power-up UNLESS some action taken by the user or the host CPU forces the write (for instance, requesting the serial number via the OSD).

Furthermore, it is recommended that CMOS switches be incorporated to isolate the DDC IC from outside connections while the EDID Fault Management is being updated. This is to prevent corruption of the data by attempts to read the data while it is being changed.

1.3.9 Firmware Update Function (same ISP function)

The update firmware need through from the D-Sub connector, use DDC I2C bus to do update firmware.

1.4 PANEL ELECTRICAL

1.4.1 General Requirements

The panel used as the display device shall be an WXGA 1366X768 resolution, 19 inch-wide TFT-LCD. This panel shall be approved for use in this monitor.

1.4.2 Panel Timings

The controller included with the monitor shall translate all video timings from the CPU that meet the timing requirements listed in Panel specification into timings appropriate for the panel. Under no circumstances may the controller supply the panel with timings that may result in damage. The controller shall insulate the panel from the CPU, so that the panel shall always be driven per it's own specification regardless of the timings being sent from the CPU.

1.4.3 Polarizer Hardness

The outer face of the front polarizer panel shall be covered with a coating with a # 3 hardness value.

1.4.4 Backlight Requirements

1.4.4.1 General Requirements

The backlight assembly shall be designed to support field replacement at the customer site or authorized service center. The lamps shall have a continuous operating life of at least 40,000 hours at 25 degree. The operating life is defined as having ended when the illumination of light has reached 50% of the initial value.

The lamps shall extend a sufficient amount from the edge of the light guide that sputtering over the life of the lamps shall not cause degradation of the luminance uniformity (such as non-illuminated bands along the edges of the display).

1.4.4.2 Lamps Startup Time

The backlight lamps shall start about 2 sec of the time the monitor power switch is pressed or the monitor is restarted from a power - down mode .The starting time shall stay about 2 sec. for the minimum expected life of the lamps.

Test conditions are as follows :

Ambient Light -----	< 1.0 lux
Temperature-----	10°C
Inactive Time -----	> 24 hours

1.4.5 Defects

1.4.5.1 Visual Inspection

The LCD panel shall be inspected with all pixels set to white,black , red , green , and blue. The color variation, brightness variation , and overall appearance must not be perceived as poor quality by Lite-On . Areas and / or parameters considered questionable shall be subjected to detailed measurements .

1.4.5.2 Display Degradation

Over the life of the product , variation of the parameters specified in Panel specification shall be maintained within reasonable limits.The panel must not exhibit any significant defects while in operation (excluding the CCFL operation).This does not in any way change the warranty given by the panel manufacturer .

1.4.5.3 Light Leakage

Except for the active display area , there shall be no light emission visible from any angle from any other part of the display . For this test , the ambient illumination must follow panel's specification.

1.4.5.4 Allowable Defects

No cosmetic defects are allowed except those specified below.The conditions of visual inspections are as follows
For P19W Series.

- Viewing distance is to be approximately 35-50cm
- Ambient illumination is to be 300 to 700 lux.
- Viewing angle shall be at 90 degree.
- Defects not apparent within one minute shall be ignored.

1.4.5.5 Defect Terminology

Table 3 gives the descriptive terms used in classifying defects.

Dark / Spots / Lines	Spots or lines that appear dark in the display patterns and are usually the result of contamination. Defects do not vary in size or intensity (contrast) when contrast voltage is varied. Contrast variation can be achieved through the use of varying gray shade patterns.
Bright Spots / Lines	Spots or lines that appear light in the display patterns. Defects do not vary in size or intensity (contrast) when contrast voltage is varied. Contrast variation can be achieved through the use of varying gray shade patterns.
Polarizer Scratch	When the unit lights, lines appear light (white) with display patterns dark and do not vary in size. Physical damage to the polarizer that does not damage the glass.
Polarizer Dent	When the unit lights, spots appear light (white) with display patterns dark and do not vary in size. Physical damage to the polarizer that does not damage the glass.
Rubbing Line	Horizontal or diagonal lines that appear gray with the display patterns dark and may have resulted from an "out of control" rubbing process on the polyimide or "waves" on the BEFs or prism sheets.
Newton Ring	The "rainbow" effect caused by non-uniform cell thickness.
Mottling	When the unit lights, variation / non - uniformity (splotchiness) appears light (white) with the display and might vary in size.
Dim Line	When the unit lights, line(s) in the monitor (vertical) or major (horizontal) axis appear dim, but not completely on or off.
Cross Lines Off	When the unit lights, lines in both the minor and major axis do not appear.
Bright / Dark Dot	A sub - pixel (R,G,B dot) stuck off / on (electrical).

1.5 Optical Characteristics

Depends on the LCD supplier's spec. Details refer to QA Inspection Spec.

1.4.5.6 Smudges, Streaks and Smears

When viewing the panel oriented so as to maximize reflected light, there shall be no visible smudging, streaking, smearing or other nonuniformity from contaminants, fingerprints, or defects in any of the visible surfaces. This is independent of whether the unit is operating or off.

1.4.5.7 Other Defects

Undefined defects that are considered to be rejectable by Lite-On will be reviewed by Lite-On as they become apparent. These panels will be referred to the Lite-On Corporate / Manufacturer Purchasing Agreement for disposition.

1.4.5.8 LCD Inspection

Put LCD panel on inspection table and illuminate the panel with a daylight fluorescent lamp located above the panel surface such that the luminance at the LCD panel is between 1000 lux and 1500 lux. Defect limits are given in Table 4.

Average Diameter smaller of (L+W)/2 or L/20+2W	Acceptable Number	Minimum Separation
< 0.1mm	Non countable	N / A
0.1 mm ~ 0.3 mm	10	15 mm
0.31 mm ~ 0.5 mm	10	15 mm
0.51 mm ~ 1.25 mm	5	15 mm
1.26 mm ~ 2.5 mm	3	25.4 mm
2.51 mm ~ 3.75 mm	3	25.4 mm
Greater than 3.75 mm	NONE	Not applicable

Note : Allowable distance between spots of two sizes is the minimum separation number for the smaller spot. Therefore, if there are two spots, 1.30mm and 0.4mm in diameter, they must be at least 15mm apart.

◀◀ Go to cover page

2.1 MAIN OSD MENU

Outline:



The description for control function:

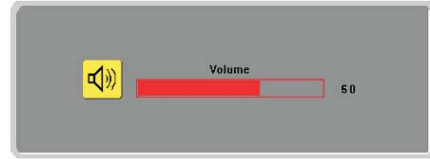
The description for control function:

Main Menu Icon	Sub Menu Icon	Sub Menu Item	Description	Adjustment Range	Reset Value
☀️	🌑	Contrast	Adjusts the contrast between the foreground and background of the screen image.	0-100	50 (Standard Mode)
	☀️	Brightness	Adjusts the background brightness of the screen image.	0-100	85 (Standard Mode)
📄	📄	Focus	Adjusts picture Focus. (available in Analog mode only)	0-100	Do Auto config
	🕒	Clock	Adjusts picture Clock. (available in Analog mode only)	0-100	Do Auto config
📏	📏	H. Position	Adjust the horizontal position. (available in Analog mode only)	0-100	Do Auto config
	📏	V. Position	Adjust the vertical position. (available in Analog mode only)	0-100	Do Auto config

Main Menu Icon	Sub Menu Icon	Sub Menu Item	Description	Adjustment Range	Reset Value
🌡️	N/A	Warm	Set the color temperature to warm white.	N/A	The color temperature will be set to cool.
	N/A	Cool	Set the color temperature to cool white.	N/A	
	🔴	User/Red	Adjusts Red/User/Green/Green/Blue intensity.	0-100	100
	🟢	User/Green		0-100	100
🟡	User/Blue	0-100		100	
🌐	N/A	English	Multi-language selection.	N/A	The language will be set to English
	N/A	繁體中文			
	N/A	Deutsch			
	N/A	Francais			
	N/A	Espanol			
	N/A	Italiano			
	N/A	簡體中文			
N/A	日本語				
📏	📏	H. Position	Adjust the horizontal position of the OSD.	0-100	50
	📏	V. Position	Adjust the vertical position of the OSD.	0-100	50
🕒	🕒	OSD Timeout	Adjust the OSD timeout.	10-120	10
	🔄	Auto Config	Auto Adjust the H/V Position, Focus and Clock of picture. (Only Analog Input Model)	N/A	N/A
📄	N/A	Analog	Select input signal from analog (D-Sub) (Only Dual Input Model)	N/A	N/A
	N/A	Digital	Select input signal from digital (DVI) (Only Dual Input Model)	N/A	N/A
🔘	N/A	DDC/CI switch	Select the DDC/CI ON or OFF	N/A	The DDC/CI switch, default is "ON" in monitor.
	N/A	Information	Show the resolution, H/V frequency, SN and input port of current input timing.	N/A	N/A
🔄	N/A	Reset	Clear each old status of Auto-configuration and set the color temperature to Warm.	N/A	N/A
EXIT	N/A	Exit	Save user adjustment and OSD disappear.	N/A	N/A

Hot-Key Menu

Outline: (With Audio Function)



The description for Hot-Key function:

Item	Operation	Icon	Description	Adjustment Range	Reset Value
Volume	When the OSD is Closed, Press left or right button will be Volume Hot-Key Function	🔊	Volume of Audio adjustment The Audio will be Mute when Volume=0	0-100	50

OSD Message

Outline:



The description for OSD Message:

Item	Description
Auto config please wait	When user press Hot-Key "Auto" ,will show this message, and the monitor do the auto config function.
Input Not Supported	When the H sync Frequency, V sync Frequency or Resolution is out of the monitor support range, will show this message. This message will be flying.
Cable Not Connected	When the Video cable is not connected, will show this message. his message will be flying.
No Signal	When the Video cable is connected, but it is no active signal input, will show this message, then enter power saving.

scenario mode

- User mode
- Text mode
- Standard mode
- Graphics mode
- Movie mode



Final Spec

mode	contrast (OSD)	brightness (OSD)
standard	50 (slope 1)	77 (85%)
text	50 (slope 1)	84 (85.1%)
graphic	60 (slope 1.04)	97 (98%)
movie	58 (slope 1.025)	77 (85%)

Operation Method

Step1: Press **OSD** key " " to initial scenario mode

Step2: press "**<** or **>**" to select the mode you want (different mode will show different color instantly (select operation only left and right, not cyclic))

Step3: If user have NO action after Step2 OSD will disappear after 10 sec and do "auto scan" (now the mode will keep original one, no change)

If user press **OSD** key " " after Step2 it means user confirm the chosen mode and monitor will do "auto scan" as well (then the mode is the chosen one)

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DCC/CI switch in OSD



For Dual Input Model

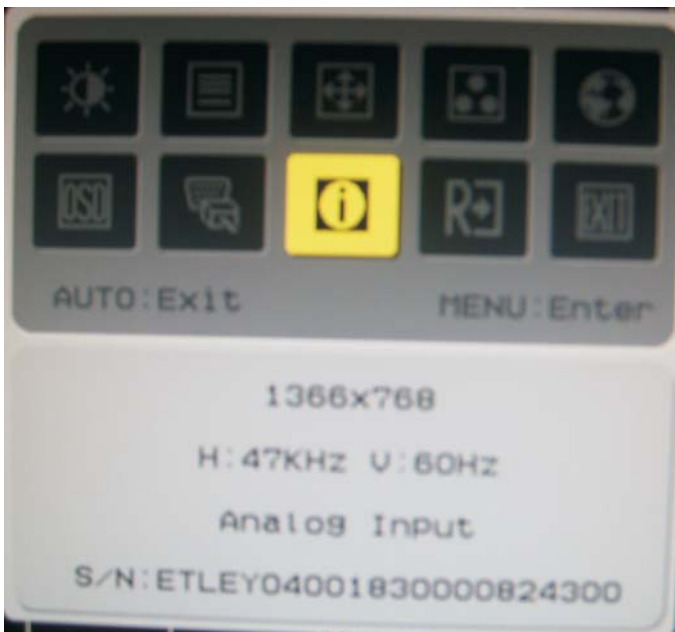


For Analog only Model

Remark:

1. The DDC/CI switch, default is "ON" in monitor.
2. For Analog only Model, use icon to instead of icon in OSD

Display Serial Number in OSD



Remark:

The SN data source can be retrieved from EDID

Appendix A ACER R17 Series

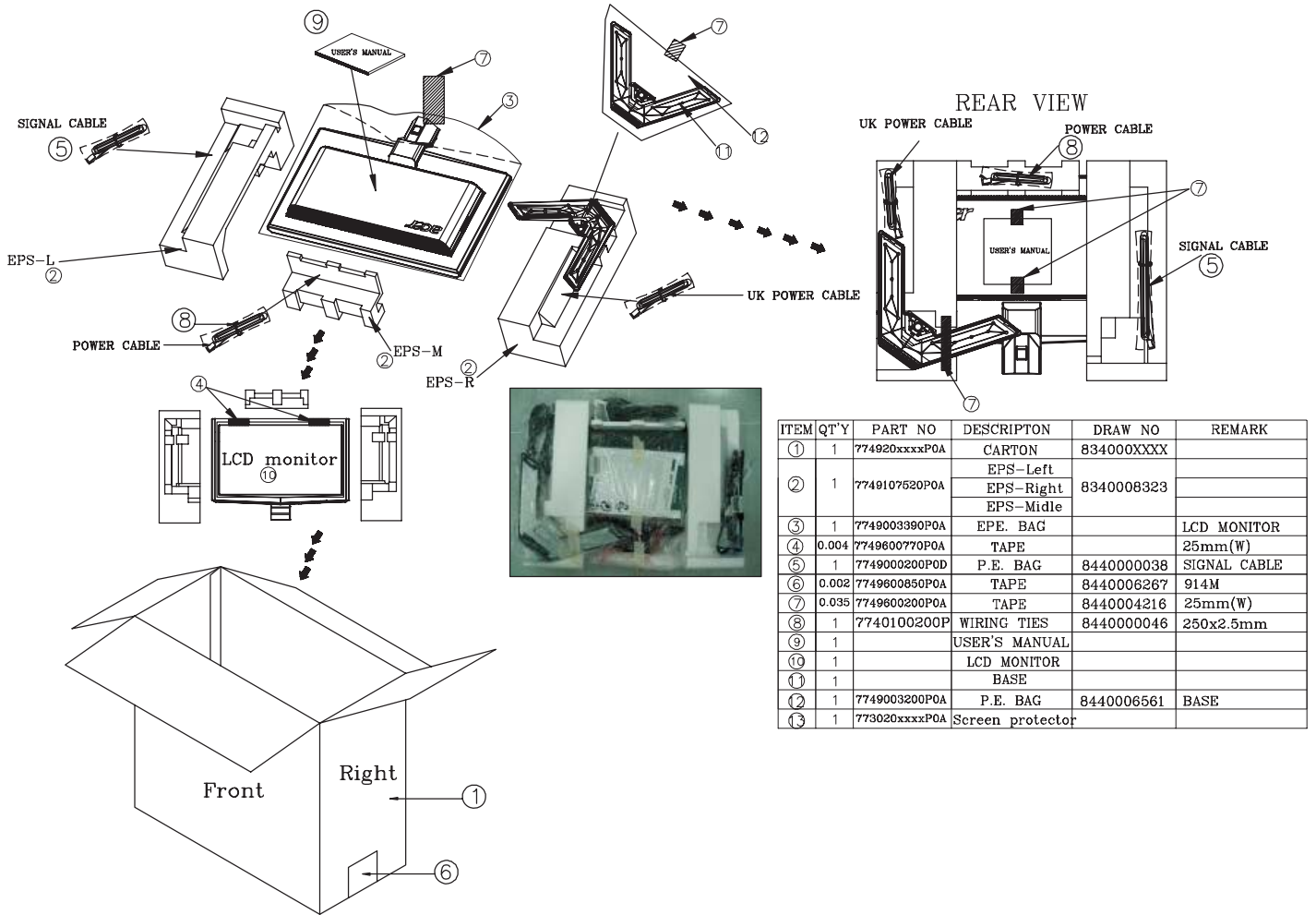
*Multiple Language

8-language contrastive table

English	Deutsch	Español	繁體中文	日本語	Français	Italiano	日本語
Contrast	Kontrast	Contraste	對比度	對比度	Contraste	Contrasto	コントラスト
Brightness	Helligkeit	Brillo	亮度	亮度	Luminosité	Luminosità	輝度
Focus	Fokus	Enfoque	聚焦	聚焦	Mettre	Miratazza	フォーカス
Clock	Takt	Frec.	頻率	頻率	Frequencia	Orologio	クロック
Warm	Warm	Cálido	暖色	暖色	Chaud	Caldo	暖色
Cool	Kalt	Fro	冷色	冷色	Ciar	Freddo	寒色
User	Hersteller	Usuario	使用者設定	使用者設定	Utilisateur	Utente	カスタムカラー
Red	Rot	Rojo	紅色	紅色	Rouge	Rossa	赤
Green	Grün	Verde	綠色	綠色	Vert	Verde	緑
Blue	Blaue	Azul	藍色	藍色	Bleu	Blu	青
English	English	English	English	English	English	English	English
H. Position	H. Position	H. Posicione	水平位置	水平位置	H. Position	O. Posizione	水平位置
V. Position	V. Position	V. Posicione	垂直位置	垂直位置	V. Position	V. Posizione	垂直位置
OSD Timeout	OSD-Timeout	T. de espera OSD	OSD 顯示時間設定	OSD 顯示時間設定	Déla de l'OSD	Intervallo OSD	OSD 表示時間設定
Analog	Analog	Ana/Digital	類比	類比	Analogique	Analogico	入出力アナログ
Digital	Digital	Digital	數位	數位	Numeré	Digitale	入出力デジタル
Reset	Rücksetzen	Reiniciar	恢復出廠設定	恢復出廠設定	Restaurer	Risettare	リセット
Exit	Beenden	Salir	退出	退出	Quitter	Uscire	終了
AUTO : Exit	AUTO : Beenden	AUTO : Salir	AUTO : 退出	AUTO : 退出	AUTO : Quitter	AUTO : Uscire	AUTO : 終了
AUTO : Return	AUTO : Zurück	AUTO : volver	AUTO : 返回	AUTO : 返回	AUTO : Retour	AUTO : Ritorno	AUTO : 戻る
Volume	Lautstärke	Volumen	音量	音量	Volume	Volume	音量
No Signal	Kein Signal	Sin señal	無訊號	無訊號	Pas de signal	Assenza segnale	入出力無訊號
Auto Config	Autom. Abgl.	Autoajuste	自動調整	自動調整	Autoconfig	Autoconfigurazione	自動調整
MENU : Enter	MENU : Eingabe	MENU : Introducir	MENU : 進入	MENU : 進入	MENU : Entrée	MENU : Inviare	MENU : 選択
MENU : Return	MENU : Zurück	MENU : Salida	MENU : 返回	MENU : 返回	MENU : Retour	MENU : Ritorno	MENU : 戻る
Input Not Supported	Frequenz nicht unterstützt	Frecuencias no soportadas	輸入不支援	輸入不支援	Frequences non supportées	Frequenza non supportata	このモードは表示できません
Connected	angeschlossen	Conectado	已連接	已連接	connecté	connesso	已連接
Cable Not Connected	Kabel nicht angeschlossen	Cable no conectado	訊號線未連接	訊號線未連接	Cable non connecté	Cavo non connesso	ケーブルが接続されていません
Please Wait	Bitte Warten	Espere por favor	請稍候	請稍候	Attendre s'il vous plaît	Attendere prego	お待ちください
Digital Input	Digital Eingang	Digital Entrada	數位輸入	數位輸入	Numérique Entrée	Digital Input	デジタル入力
Analog Input	Analog Eingang	Ana/Digitalo Entrada	類比輸入	類比輸入	Analogique Entrée	Analogico Input	アナログ入力
User Text	Schürker Text	Usuario Texto	使用者文字	使用者文字	Utilisateur Texte	Utente Testo	ユーザーテキスト
Standard	Standard	Estándar	標準	標準	Standard	Standard	標準
Graphics	Grafische	Graficos	圖形	圖形	Images	Grafica	グラフィックス
Movie	Film	Película	電影	電影	Film	Film	ムービー
AUTO Adjust/Exit	AUTO Anpassungen/Verlassen	AUTO Ajuste/Salir	AUTO 調整/退出	AUTO 調整/退出	AUTO Ajuster/Quitter	AUTO Regola/Esce	AUTO 調整/終了
** Select	** Selección	** Seleccionar	** 選擇	** 選擇	** Sélectionner	** Selezionare	** 選択

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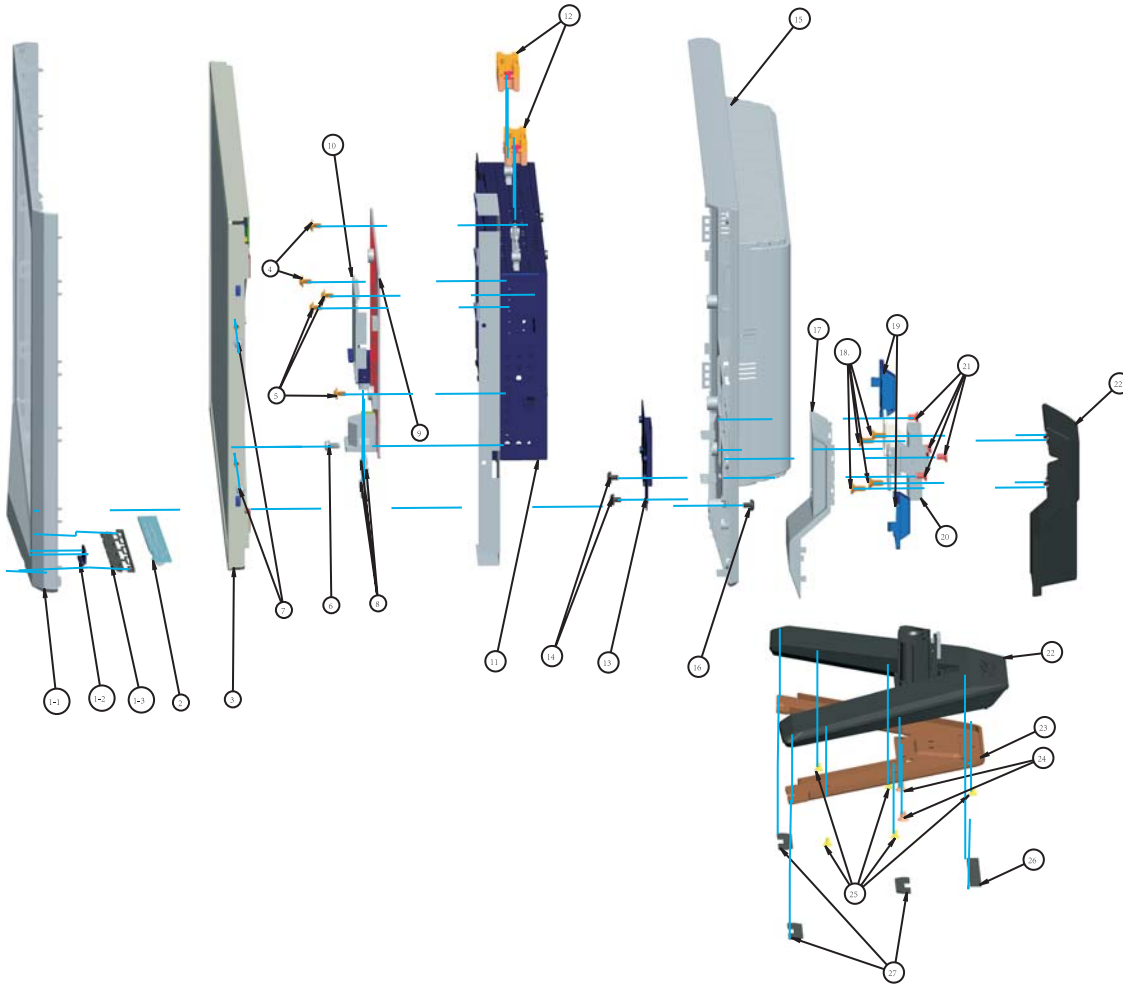
3.1 Packing Exploded Diagram



ITEM	QTY	PART NO	DESCRIPTION	DRAW NO	REMARK
①	1	774920xxxxPOA	CARTON	834000XXXX	
②	1	7749107520POA	EPS-Left	8340008323	
			EPS-Right		
			EPS-Midle		
③	1	7749003390POA	EPE. BAG		LCD MONITOR
④	0.004	7749600770POA	TAPE		25mm(W)
⑤	1	7749000200POD	P.E. BAG	8440000038	SIGNAL CABLE
⑥	0.002	7749600850POA	TAPE	8440006267	914M
⑦	0.035	7749600200POA	TAPE	8440004216	25mm(W)
⑧	1	7740100200P	WIRING TIES	8440000046	250x2.5mm
⑨	1		USER'S MANUAL		
⑩	1		LCD MONITOR		
⑪	1		BASE		
⑫	1	7749003200POA	P.E. BAG	8440006561	BASE
⑬	1	773020xxxxPOA	Screen protector		

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3.2 Product Exploded Diagram



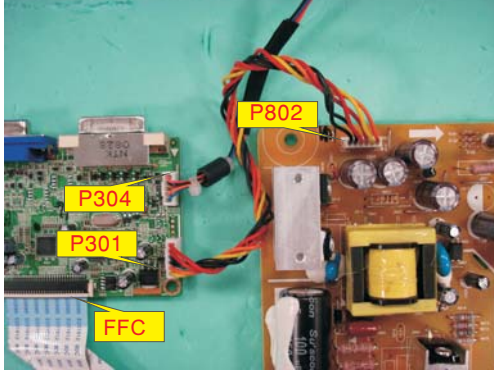
Item	Part Number /Name	Number
1-1	FPC	1
1-2	Power Lens	1
1-3	Function Key	1
2	Function Key BD	1
3	Panel ACO	1
4	7111250061P/A	2
5	7131250061P/A	3
6	7136240081P/A	1
7	3x3.5"4	2
8	7110750082P/A	4
9	Power BD	1
10	Interface BD	1
11	Bracket ASSY	1
12	Speaker 1W	2
13	Hinge Metal B/C	1
14	7140850054P/A	2
15	Rear Cover	1
16	7140250103P/A	1
17	Stand Front Cover	1
18	7140340162P/A	4
19	Hinge Cover L&R	1 & 1
20	Hinge 7140340162P/A	4
21	7110940071P/B	4
22	Stand P&C	1
23	Base Metal	1
24	7140340082P/A	2
25	7140340081P/A	5
26	Rubber cushion	1
27	Rubber Cushion	3=>2

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4.1 Assembly procedures:

S1

Connect the cable between power board(P802) and interface board (P301)
 Connect the function key cable into interface board(P304)
 Connect the FFC cable into interface board



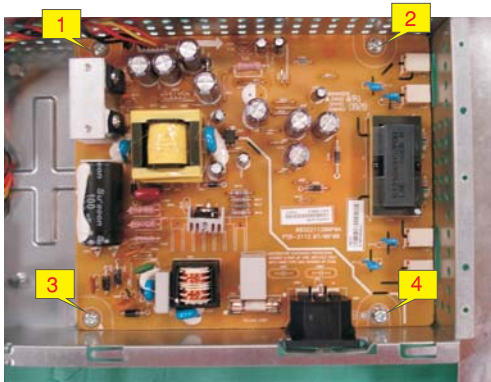
S4

Take the key function cable out from the hole shown as photo
 Fix the function key cable with a PVC tape



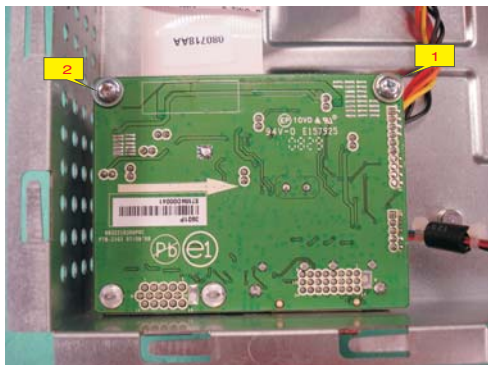
S2

Use a Phillips-head screwdriver screwed the No.1~4 screws till that power board and bracket chassis base firmly attached.(No1~3 screw size=M3x6; No4 screw size=M4x8; Torque=9~10KGFxCM).



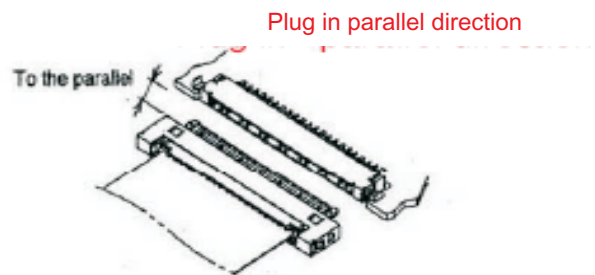
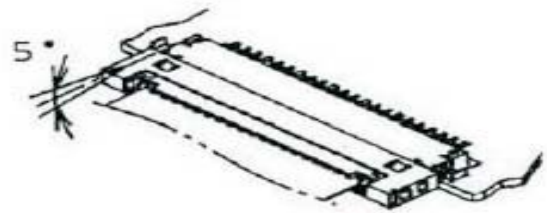
S3

Use a Phillips-head screwdriver screwed the No.1~2 screws till that interface board and bracket chassis base firmly attached. (No1~2 screw size=M3x6; Torque=9~10KGFxCM).



S5

Turn the monitor faced down and put it on the bracket chassis module till both parts firmly Connect FFC cable to LCD panel. There are two locks over here when plugging in should be noticed



Plug in parallel direction

Angel < 5 degrees

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S6

Take lamp cables out from the holes shown as the photo.



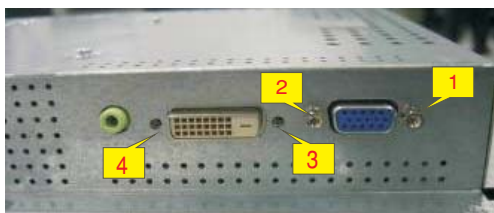
S7

Plug 2 lamp cables to the connectors of inverter board.



S8

Use a Hex-head and Phillips-head screwdriver screwed the DVI and D-SUB connectors (No.1~4 Hex Nut screws
Size=M3x8;Torque=6.5±0.5KGFxCM).
Torque=6.5±0.5KGFxCM).



S9

Take a key function board to hook with front bezel and connect to key function cable.



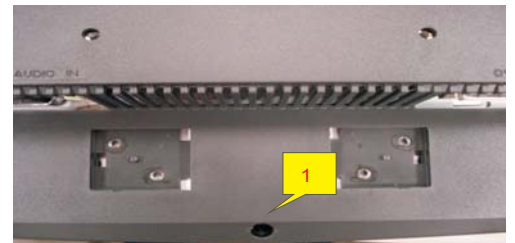
S10

Put a rear cover on the assembled unit and press on force mechanisms locked and firmly attached.



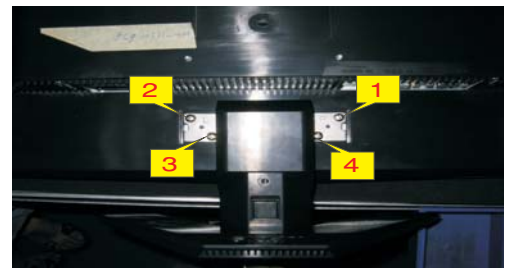
S11

Use a Phillips-head screwdriver screw 1 screw (No1 Screw Size=M4x10; Torque=7.5~9.5KGFxCM).



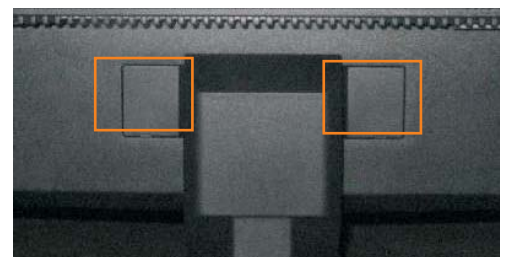
S12

Assemble the stand upper side to the rear cover through the way of screwing 4 screws till both units firmly attached.
(No1~4 Screw Size=M4x10; Torque=12±1KGFxCM).



S13

Assemble the hinge cover into both two sides



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S14

Stick a screen card on the front bezel with two tapes.



S18

Put accessories of stand, DVI cable, and user's manual ,power cable on specific positions as photo below.



D-SUB CABLE

DVI CABLE

S15

Stick Vista and TC003 label on the correct position the same as below photo



USER'S MANUAL

S16

Take a LDPE+EPE bag to cover the LCD monitor.



S19

Move previous assembled parts into the carton then stick Vista and feature label on the carton then packing the carton



FEATURE LABEL

VISTA LABEL

S17

Take two cushion foams; one is held the left side of LCD monitor, and another is held the right side.



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4.2 Disassembly procedures

S1

Open the carton with a proper tool.



S2

Take out all accessories including D-SUB cable, power cable, DVI cables, user's manual, and packing material from the carton. (Note: It depends on whether users returning the accessories.)



D-SUB CABLE

DVI CABLE



USER'S MANUAL

S3

Take off two cushion foams



S4

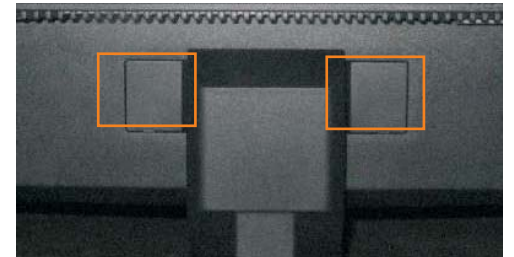
Put returned unit on a protective cushion, then remove LDPE+EPE bag.

Tear off tapes to remove the screen protector card then turn over the LCD monitor (screen faced down),



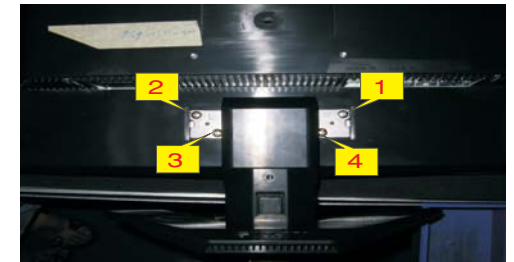
S5

Disassemble the stand cover.



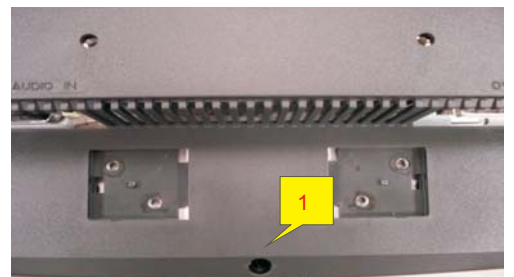
S6

Use a Phillips-head screwdriver to unscrew 4 screws to release the stand base. (No1~4 Screw Size=M4x10; Torque=12±1KGFxCM).



S7

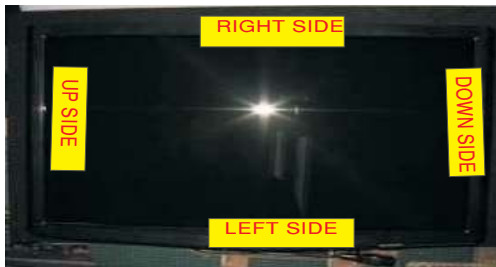
Use a Phillips-head screwdriver to unscrew 1 screw (No1 Screw Size=M4x10; Torque=7.5~9.5KGFxCM).



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S8

Put the dissembled monitor closed to by myself



S9

Wedge your finger between the front bezel and the panel, then pry up on the front bezel to disengage the locking mechanism.



S10

Turn over the LCD monitor (screen faced up).



S11

Insert steel rule between panel and front bezel .Using properly force to let the locking mechanism of front bezel and rear cover separated



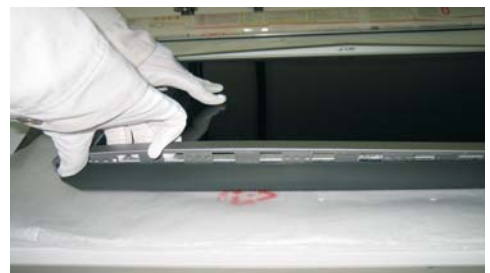
S12

Separating all of the locking mechanism of the front bezel in turn



S13

Hold the one upside corner of the front bezel after separating the upside of the front bezel Using properly force to pull up front bezel that will let the locking mechanism of left side, right side and down side separated



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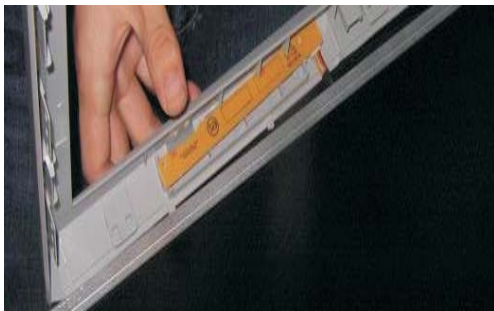
S14

Hold one side of down side that had been separated from front bezel
Use properly force to pull up front bezel



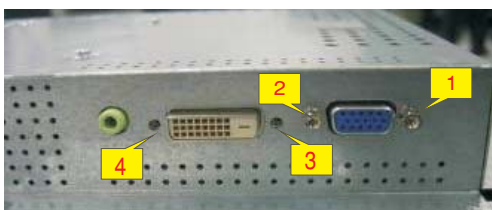
S15

Unhook the key function board from front bezel, disconnect the key function cable



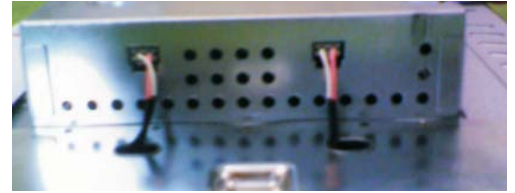
S16

Use a Hex-head screwdriver unscrewed 4 screws to release the DVI and D-SUB connectors (No1~4Hex Nut screws
Size=M3x8;Torque=4.5~6.5KGFxCM).



S17

Unplug 2 lamp cables



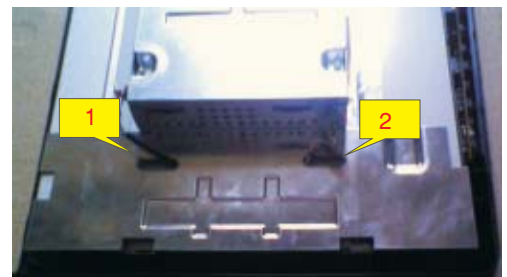
S18

Disconnect the FFC cable to the connector of panel.
Use finger to push the lock according to arrow direction then take out the FFC cable



S19

Take out lamp cables right through the No.1-2 square holes and separate the bracket chassis module and LCD panel apart.



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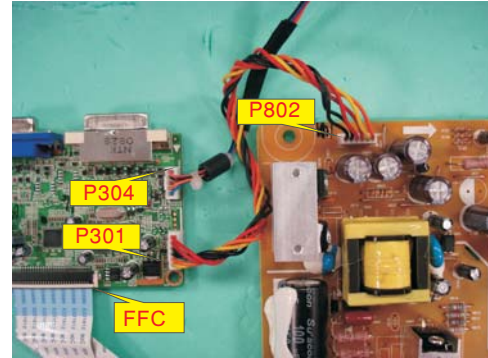
S20

Examine the panel surface according to inspection criteria. Put it aside.



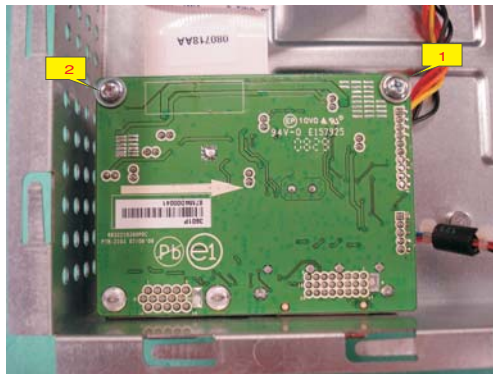
S23

Disconnect all of the cable



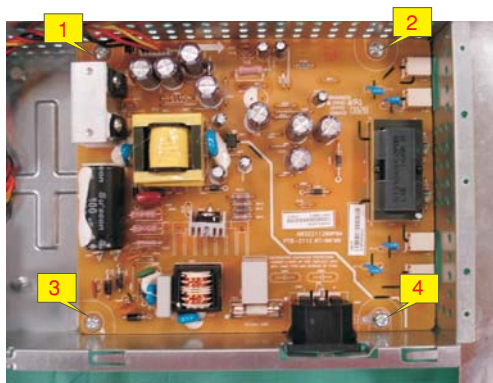
S21

Use a Phillips-head screwdriver unscrewed the No.1~2 screws to release the interface board. (No.1~2 screw size=M3x6; Torque=9~10KGFxCM).

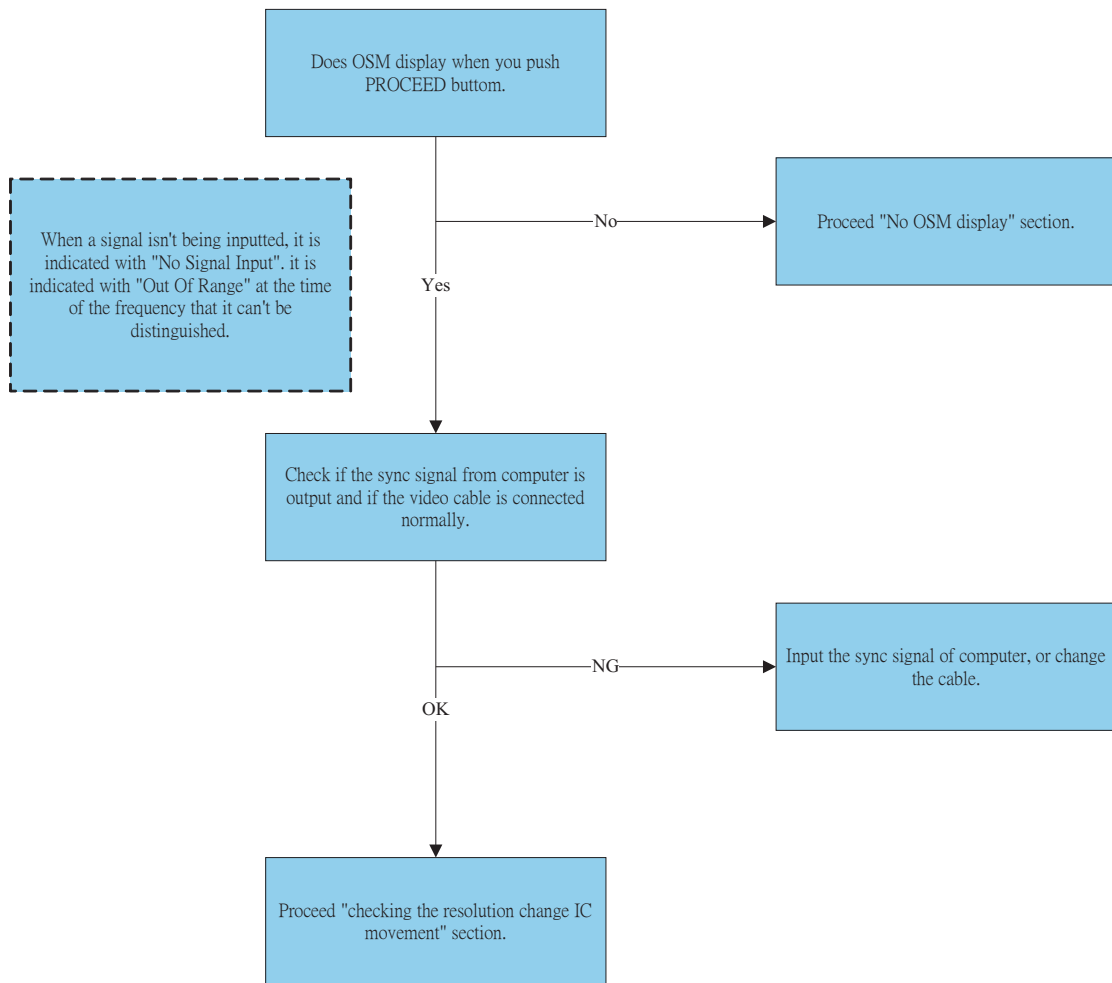


S22

Use a Phillips-head screwdriver unscrewed the No.1~4 screws to disassemble the power board. (No 1~3 screw size=M3x6; No 4 screw size=M4x8; Torque=9~10KGFxCM).

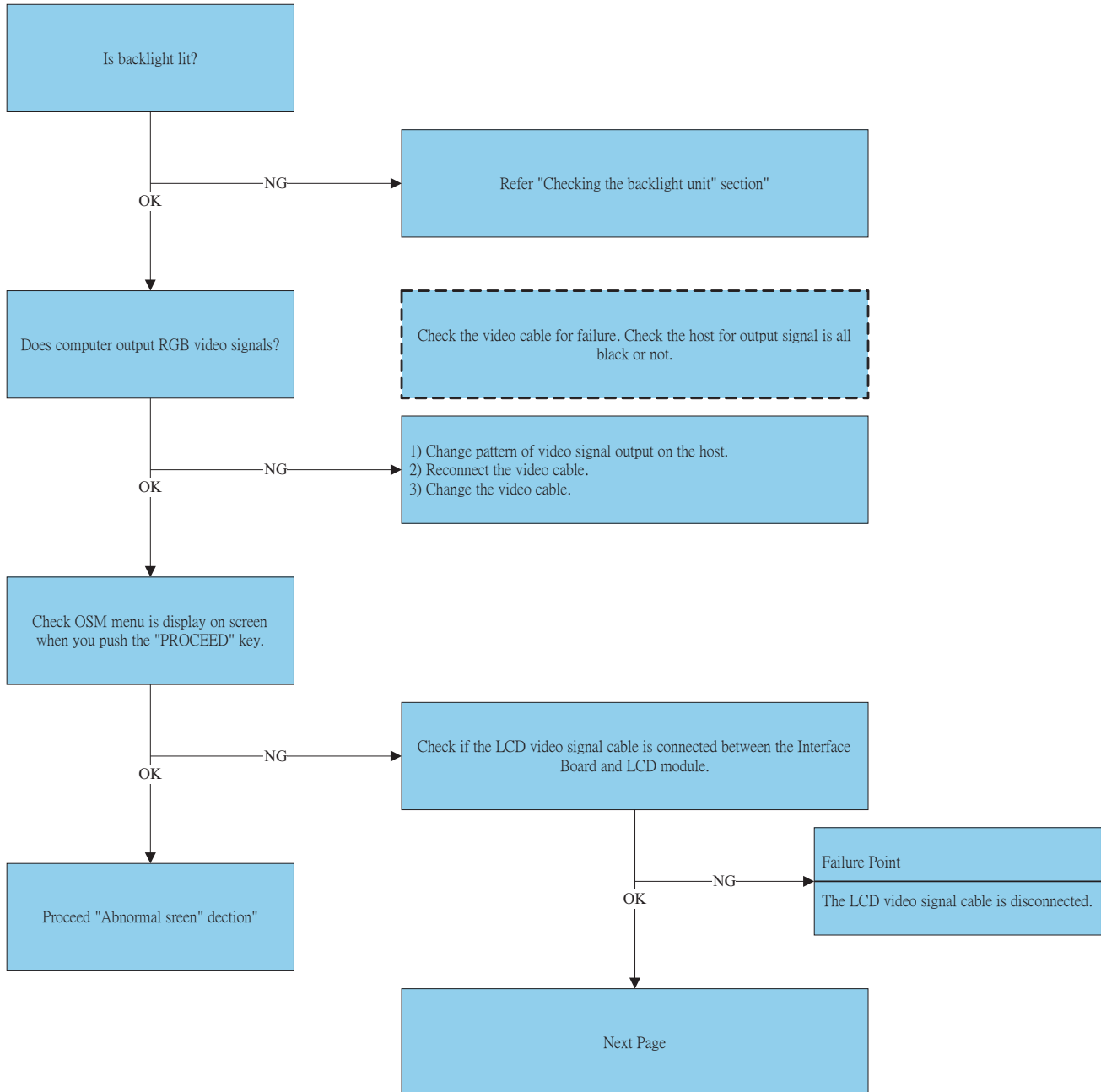


5.1 No display on the screen (Screen is black and colour of LED is amber.)

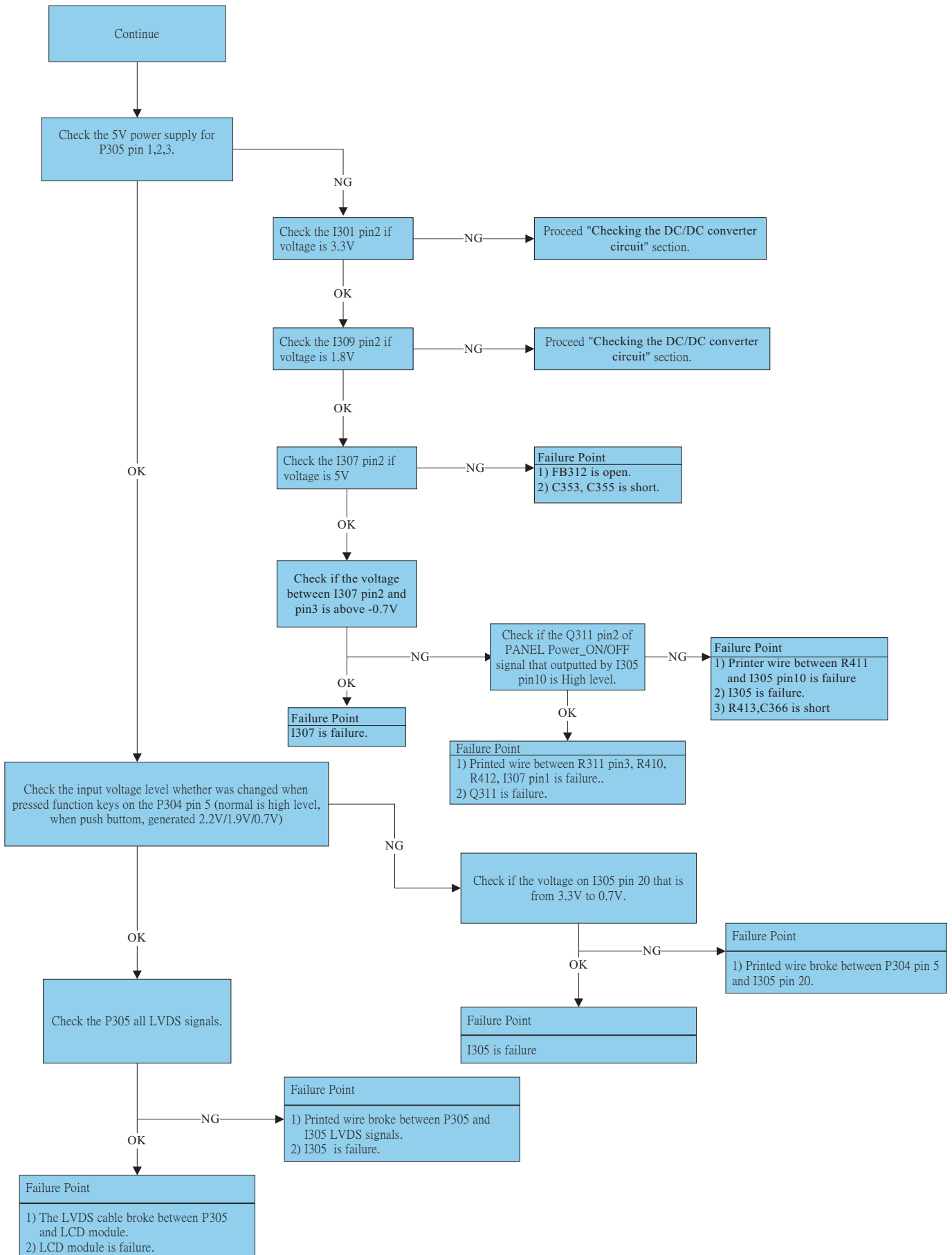


◀◀ Go to cover page

5.2 Nothing displays on the screen (Screen is black and colour of LED is blue.)

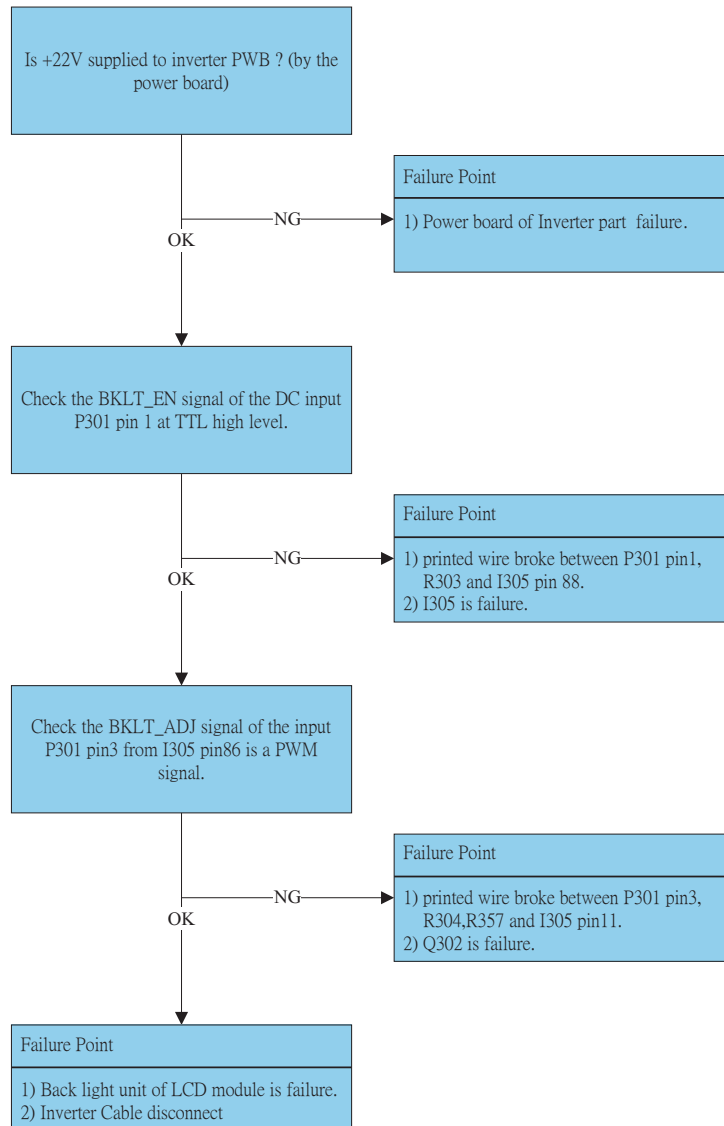


5.2 Nothing displays on the screen (Screen is black and colour of LED is blue)continued

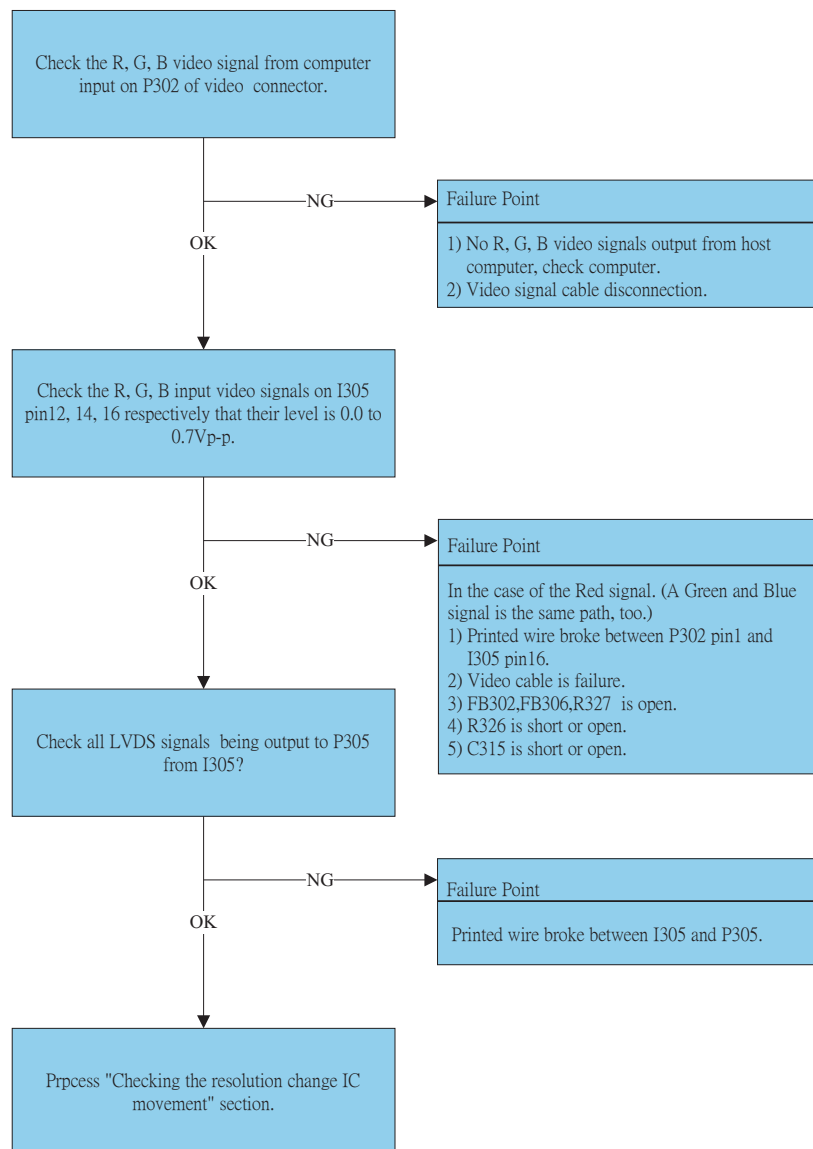


◀◀ Go to cover page

5.3 Checking the back light unit

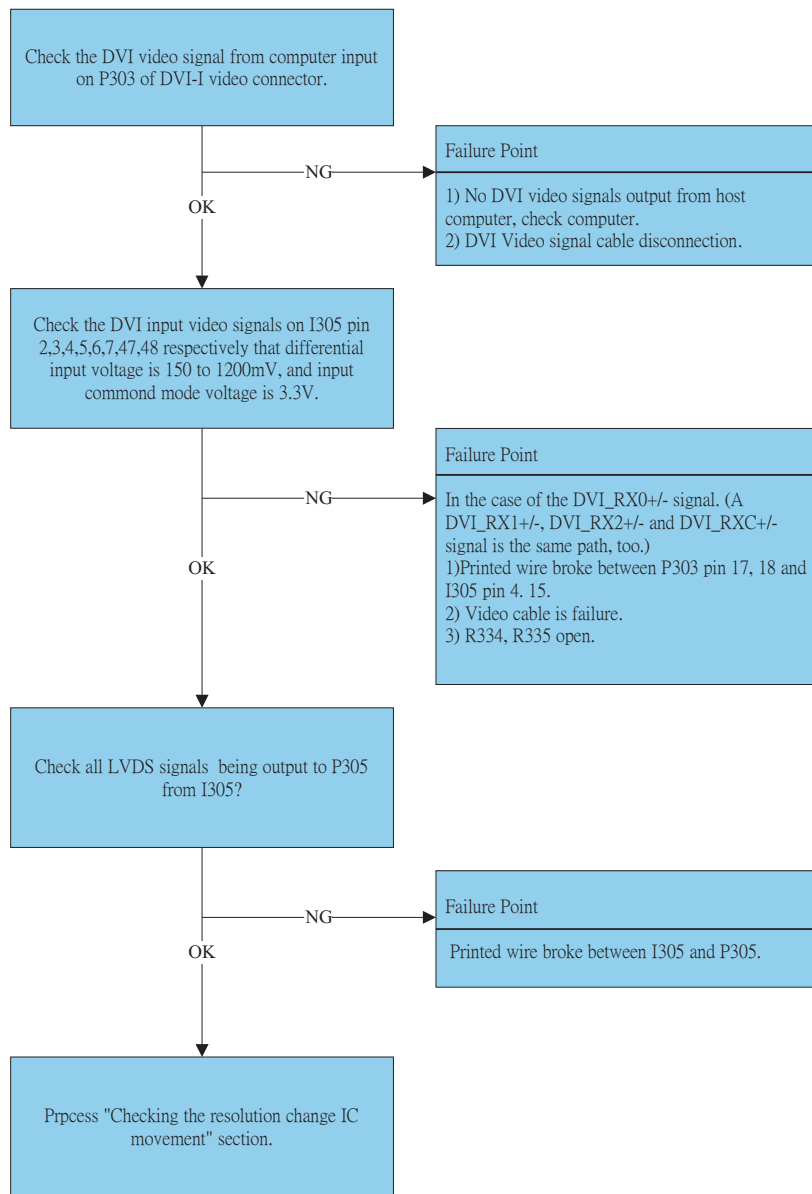


5.4 Abnormal screen for VGA

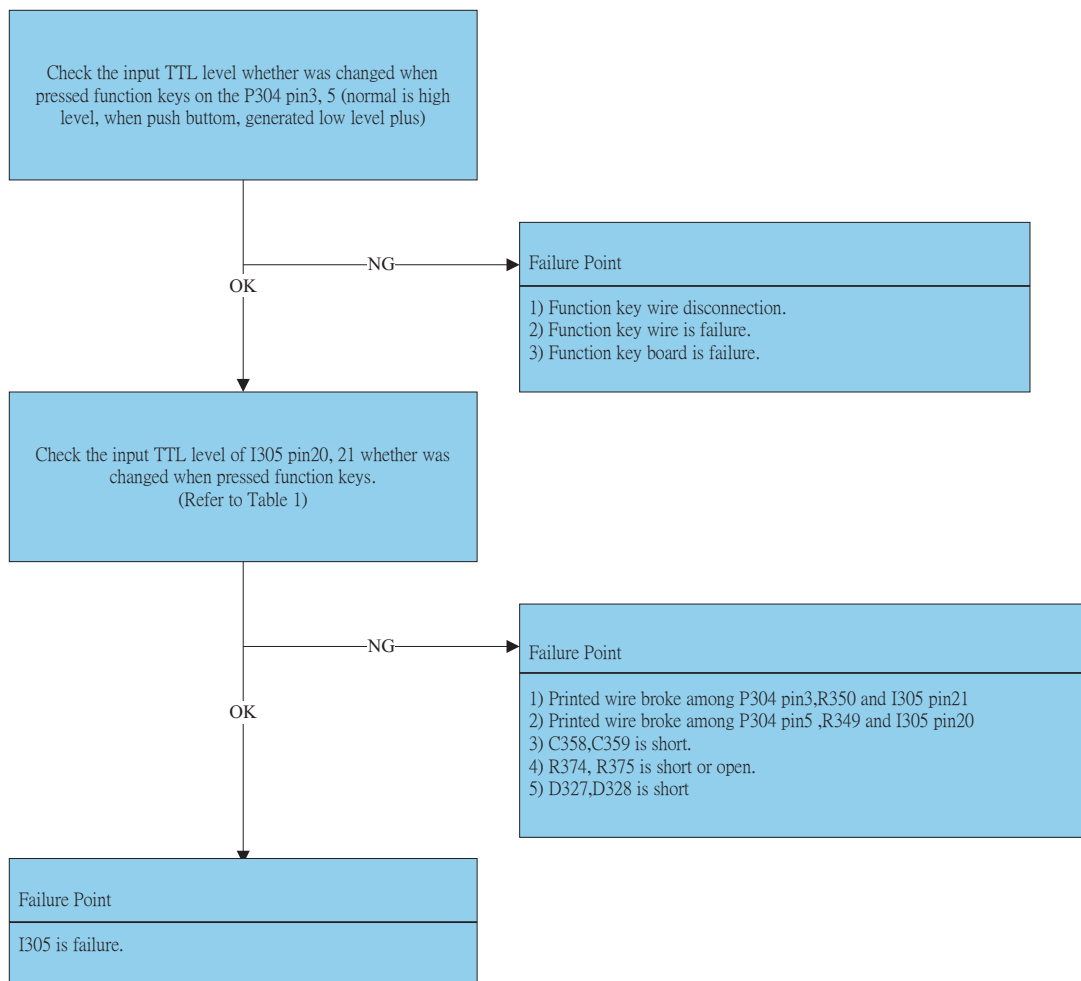


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5.5 Abnormal screen (For the DVI)

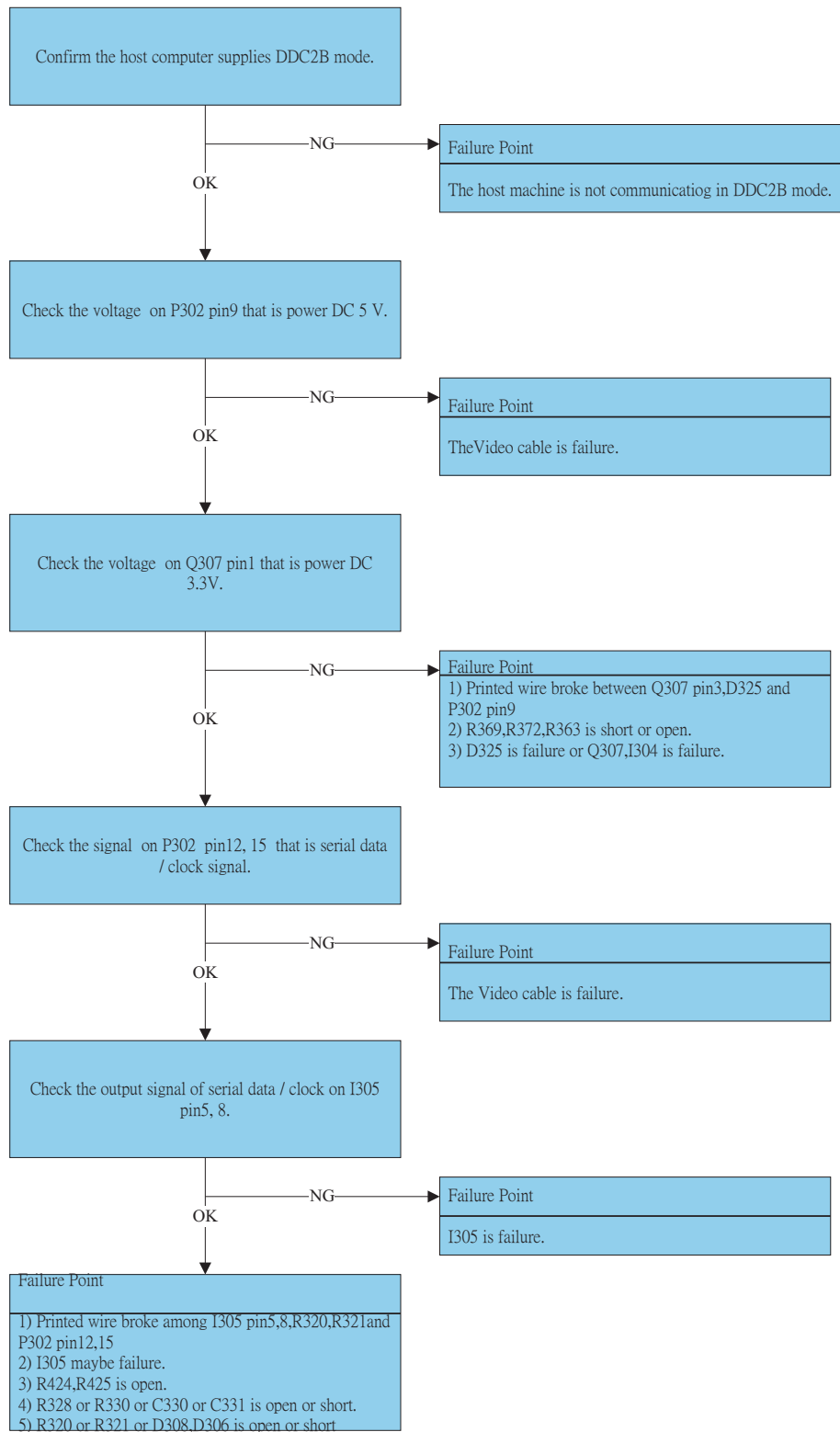


5.6 Abnormal OSM display adjust problem

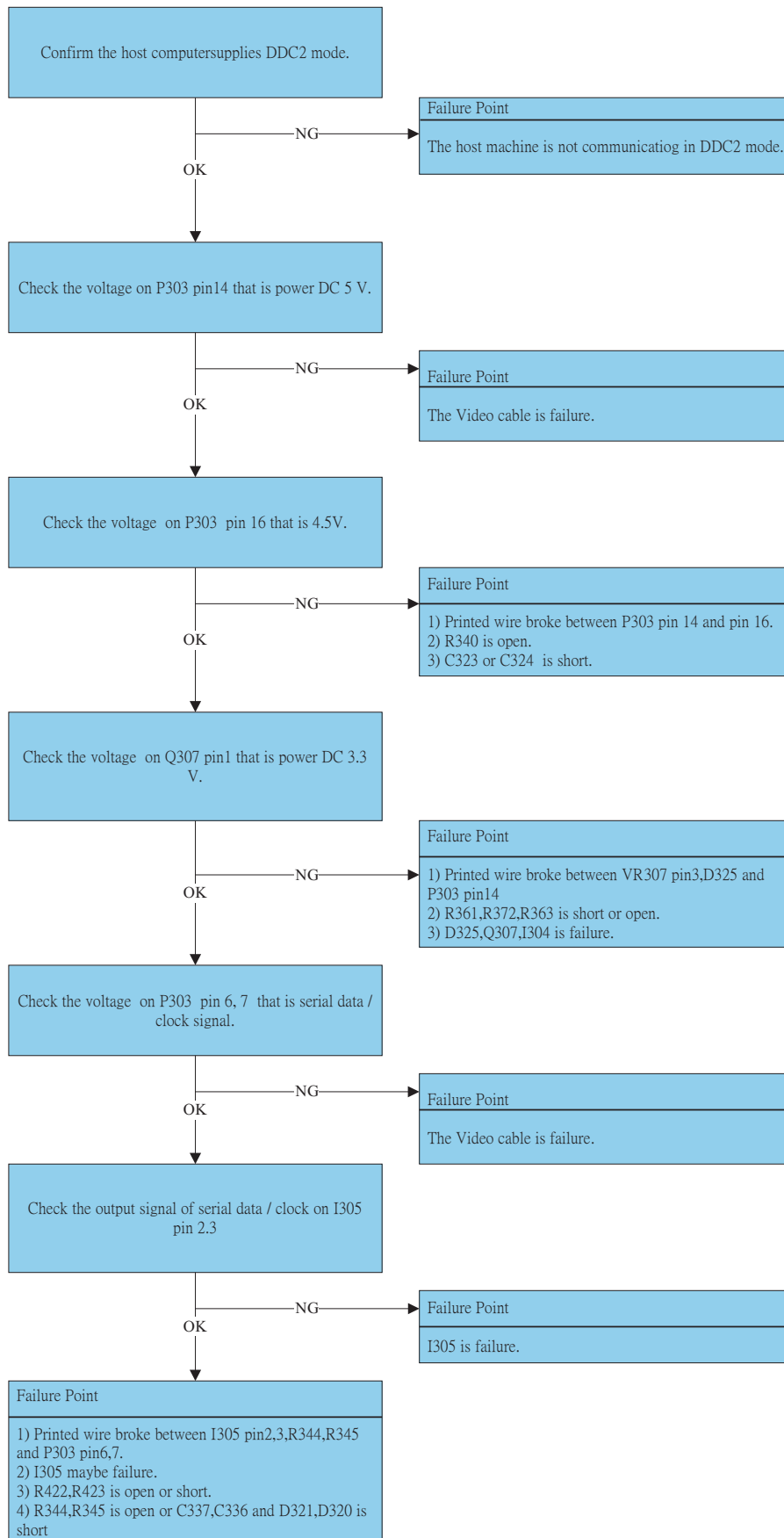


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5.7 Abnormal plug and play operation for VGA



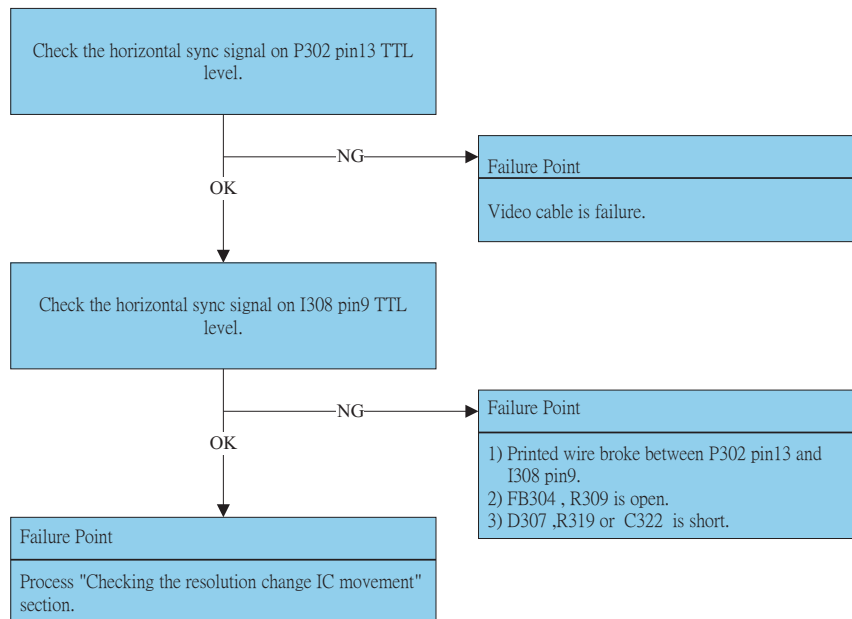
5.8 Abnormal plug and play operation (For the DVI)



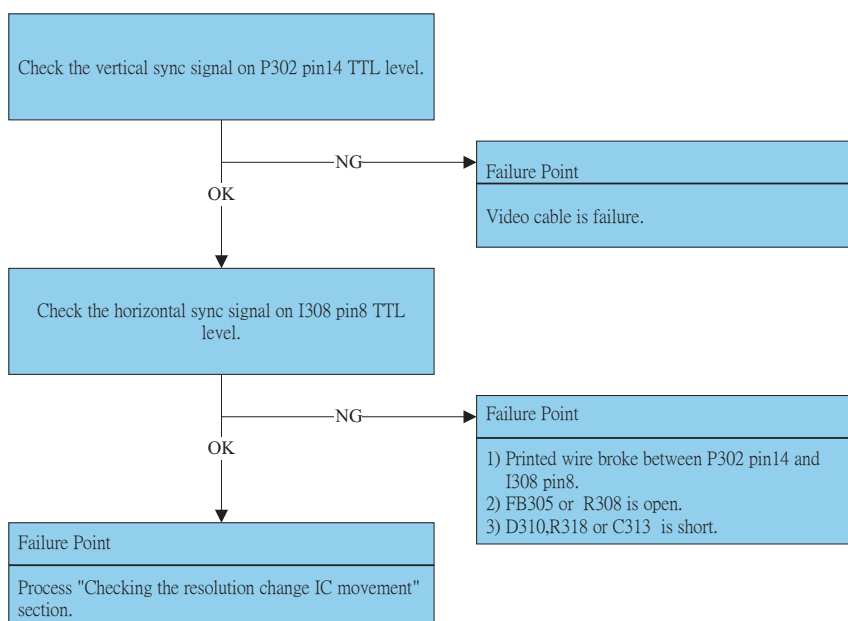
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5.9 Checking the interface circuit of sync signal

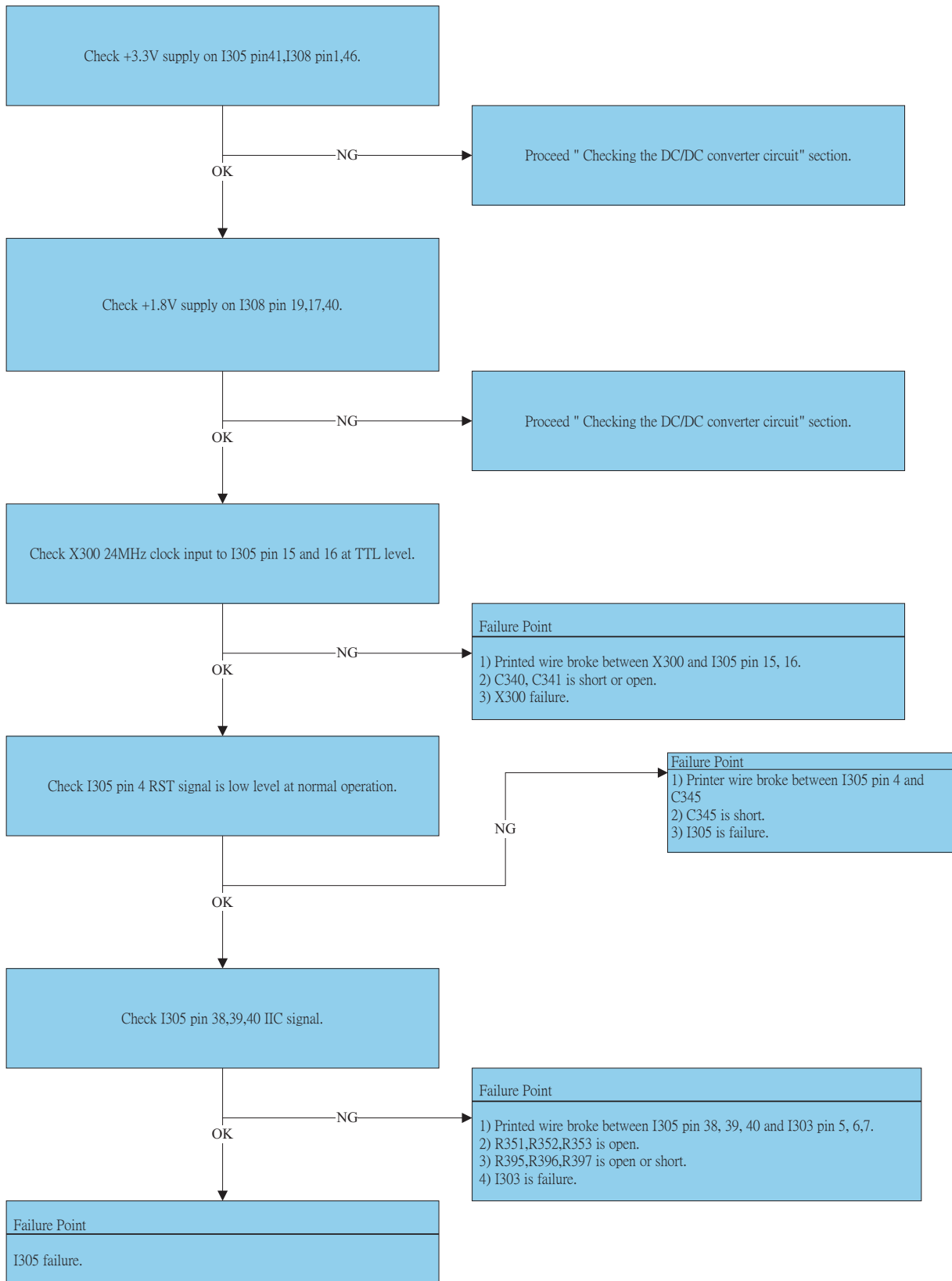
5.9.1 Checking the control circuit of horizontal sync pluse



5.9.2 Checking the control circuit of vertical sync pluse

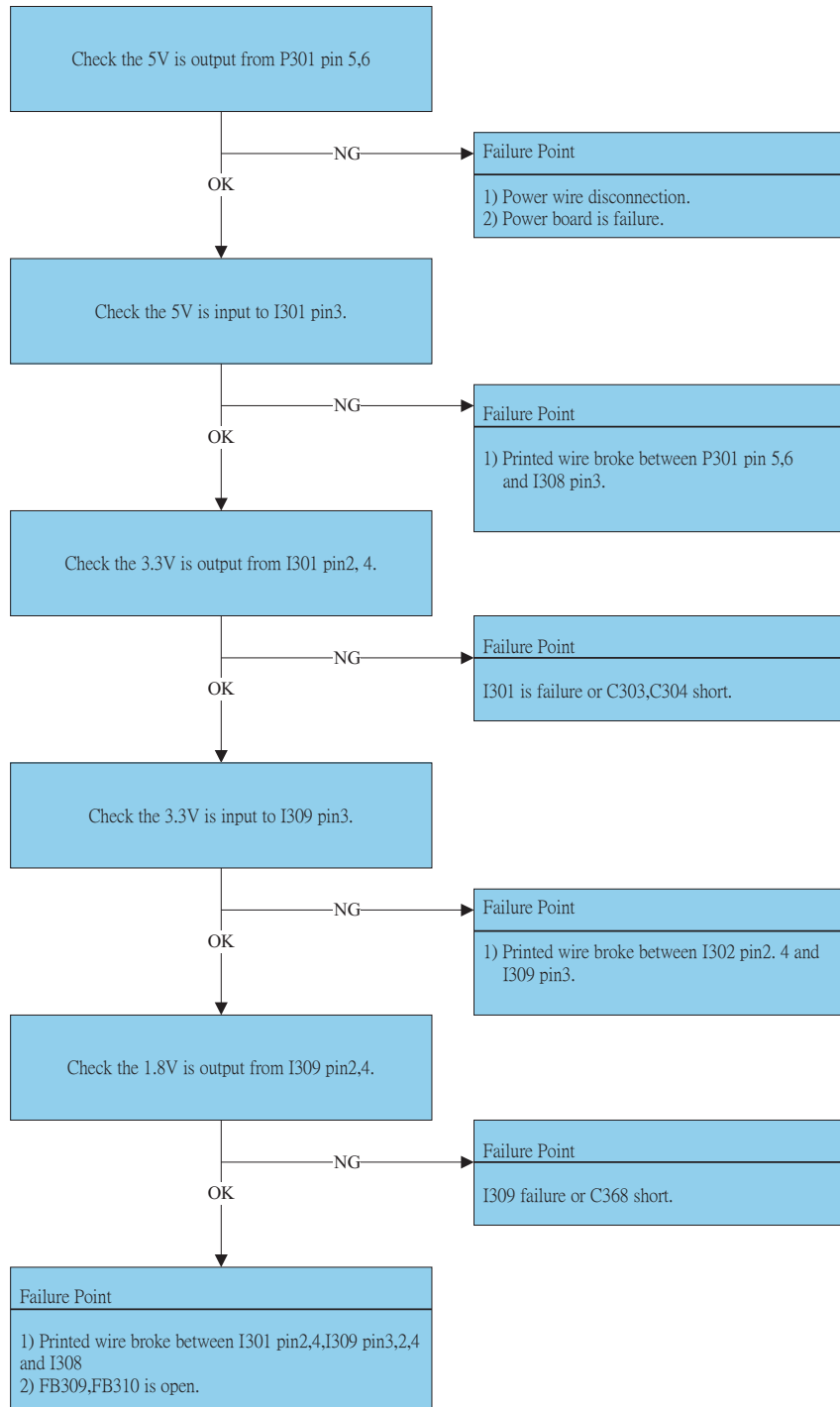


5.10 Checking the resolution change IC movement



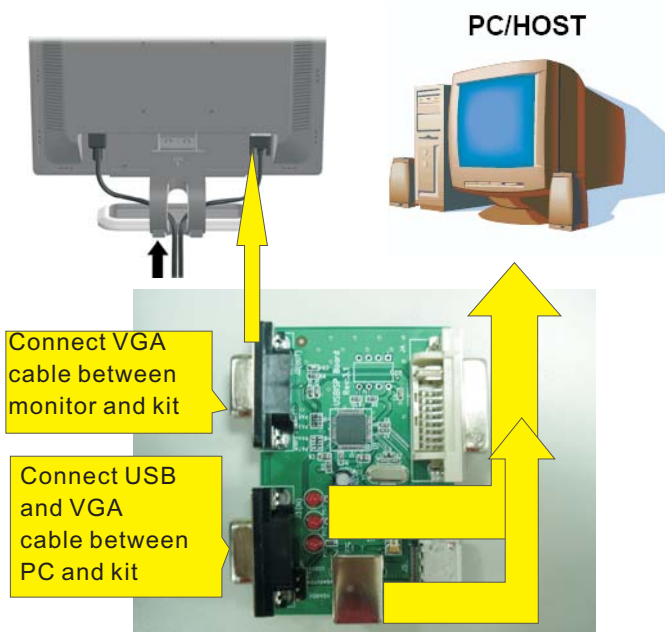
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5.11 Checking the DC/DC converter circuit

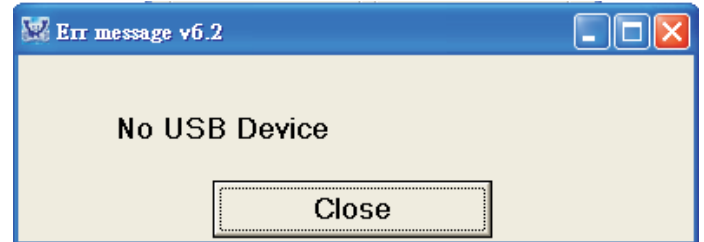


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6.1 Hardware Configuration



If it shows "No USB Device", there is a problems with communication .you should confirm your USB device whether be detected by your PC device management or reconnect the USB cable again.



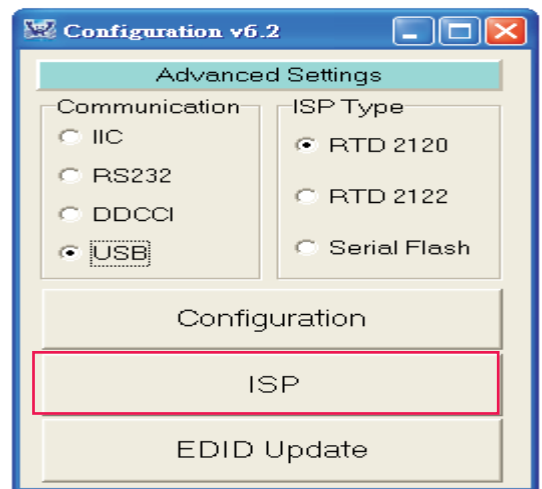
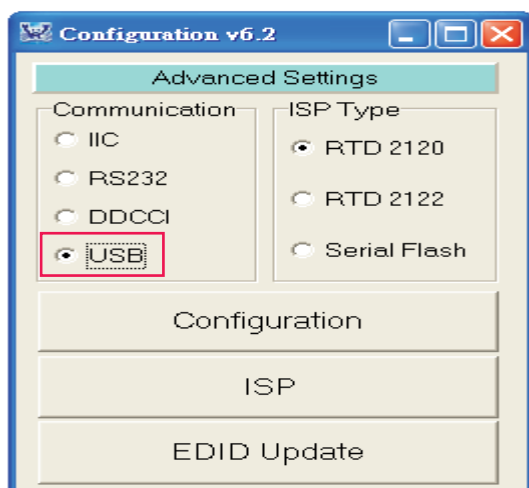
Step-3 Select ISP icon.

6.2 Realtek F/W Configuration:

Step-1 Launch the utility of "DebugTool_V6.2.exe"

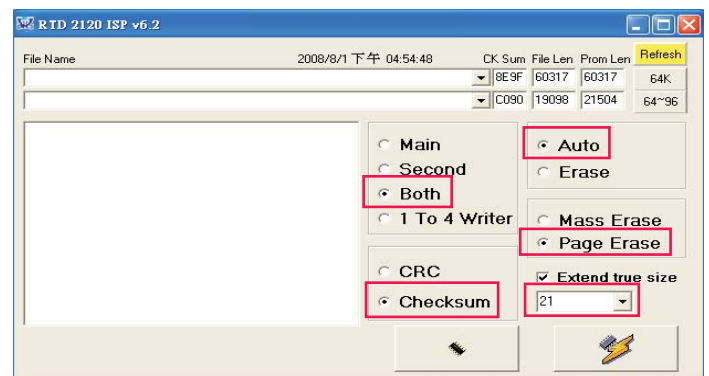


Step-2 Select "USB"



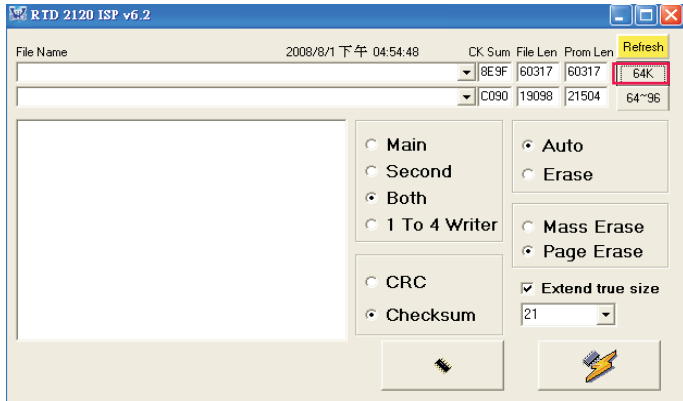
Step-4 Follow up the red square indication

Select "both", "Checksum", "Auto", "Page Erase",
Select "21" for Extend size.

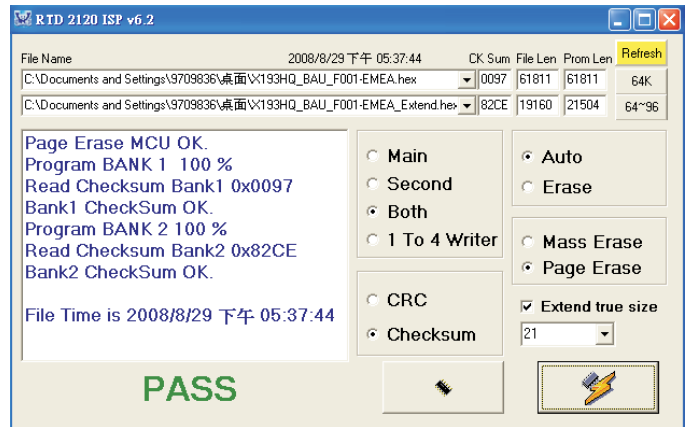


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Step-5 Select "64K" icon to load firmware image. There are two HEX files. You only need to select "64K" to choose "X203H_AAS_F001-EMEA.hex" and "X203H_AAS_F001-EMEA_Extend.hex" will be loaded in "64~96" automatically.



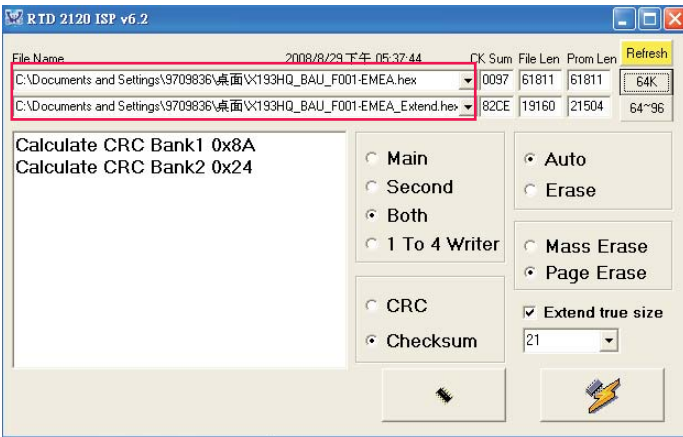
The screen will show "PASS"



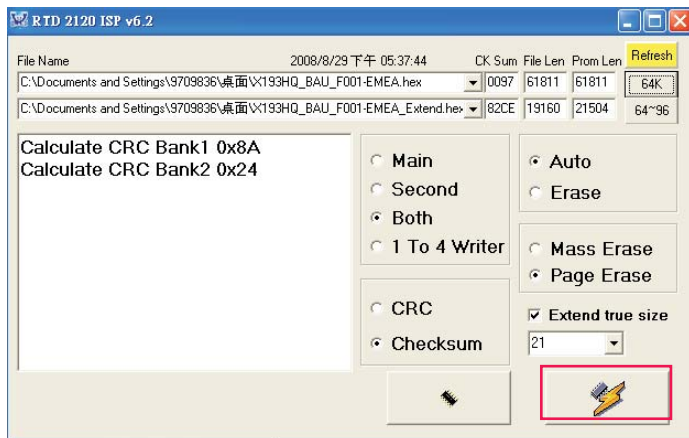
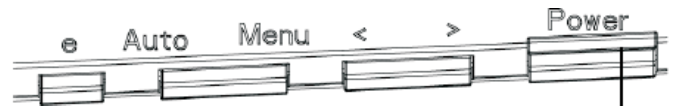
Check firmware version

Turn off the power, then press force on "POWER" and "E" button at the same time then press on "MENU" button to enter factory mode

Note: Please pay attention, Don't change any parameter which is measured by precise machine before shipping out



Step-6 Press button

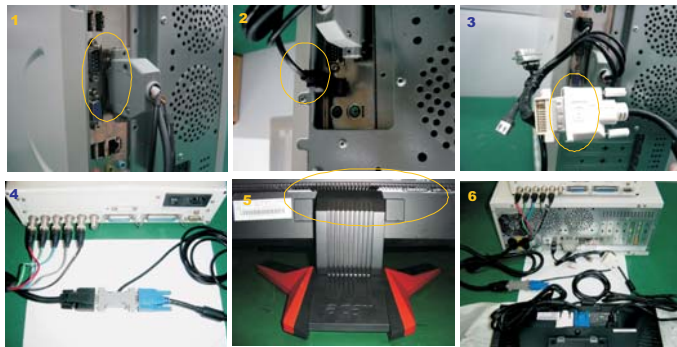
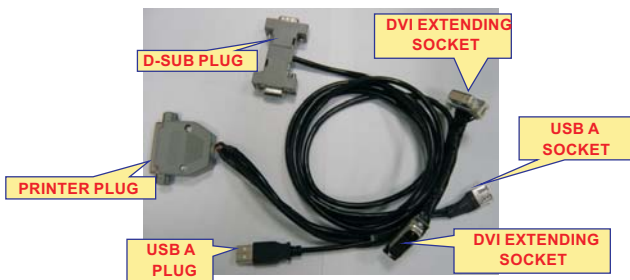


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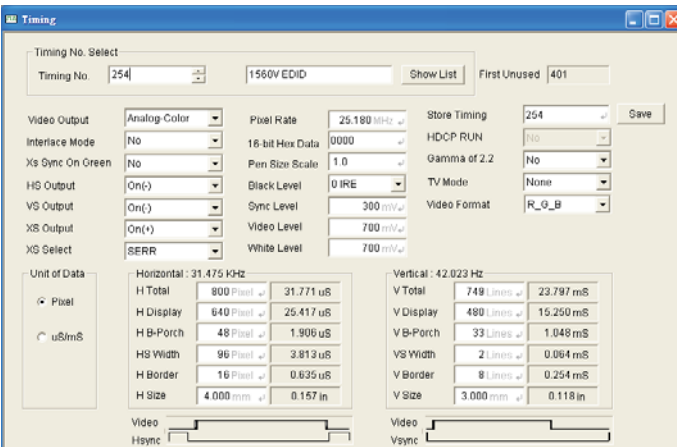
1 Writing EDID Procedure

Hardware Configuration:

- 1.) Connect the PRINTER PLUG of DDC FIXTURE with the printer port of Desktop PC. (Refer to figure 1)
- 2.) Plug USB A PLUG of DDC FIXTURE to USB socket of Desktop PC (Refer to figure 2)
- 3.) Extend the DVI cable on DVI EXTENDING SOCKET of DDC FIXTURE. (Refer to figure 3)
- 4.1) Connect the D-sub plug of Chroma with D-SUB PLUG of DDC FIXTURE (Refer to figure 4)
- 4.2) Take a video cable then connect the D-SUB PLUG and the D-sub socket of monitor. (Refer to figure 5)
- 5.) Connect the extended DVI cable to DVI socket of monitor (Refer to figure 5)
- 6.) Re-confirm all the connectors are connected well.



CAUTION: The timing of Chroma shall be setup at T254/ P41 before data recording. the detail setting parameter from chroma .Please See below photo



2. Writing VGA/DVI Process

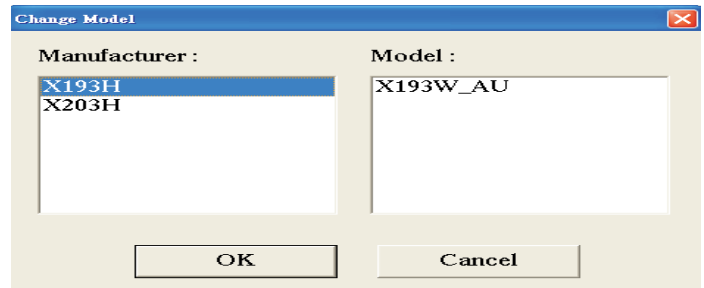
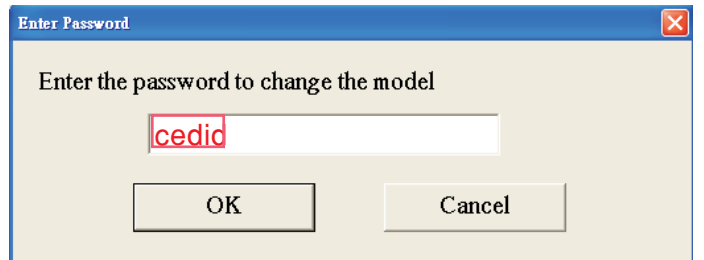
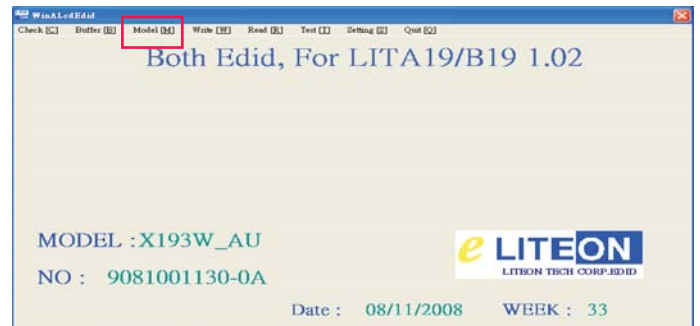
Chose the folder: "Acer-X193H-X203H-digital signal" or "Acer-X193H-X203H" it depends on which model you want to write. Acer-X193H-X203H be used in the monitor only has VGA port.

Acer-X193H-X203H-digital signal be used in the monitor both have VGA and DVI port

Select the "Acer-M1&M3-XPEDID-DVI-.exe" to execute it

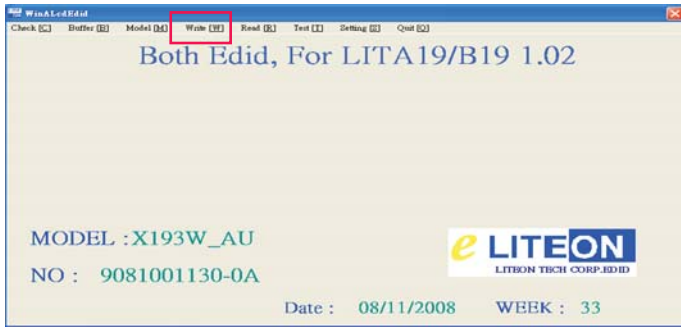


3. Select Model: Key in password "cedid" then select model which one you want to write EDID code that it depends on panel type.



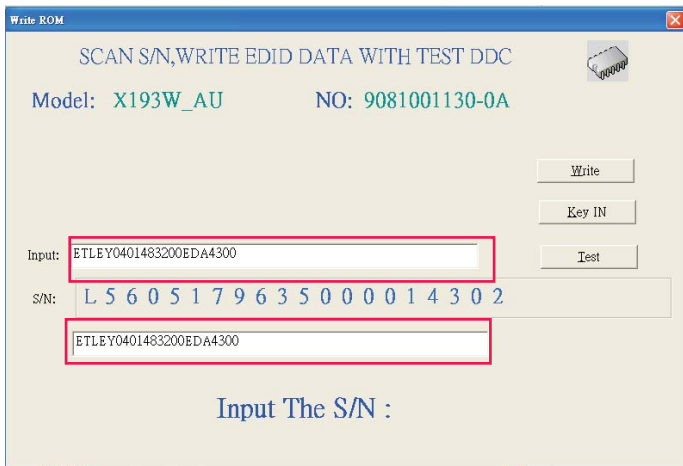
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4. Choose "WRITE" from menu then select "Scan S/N And Write EDID And Test DDC"



5. Key in series number(22 characters) in the input column and below empty column.

Press write button after key in S/N



6. When EDID was written successfully that will show below message on the screen

